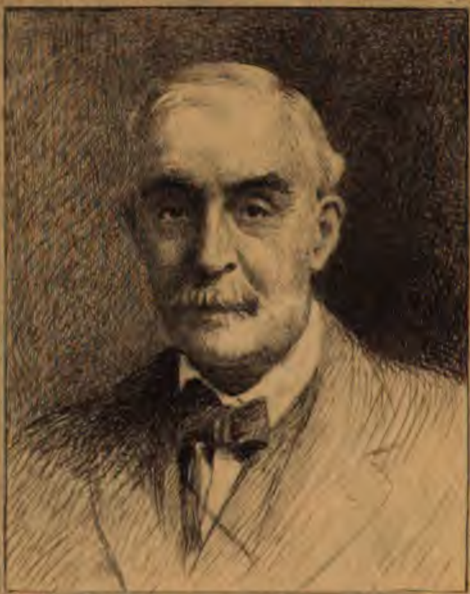


ARISTOTLE.

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SECOND EDITION, WITH ADDITIONS.

LONDON:
JOHN MURRAY, ALBEMARLE STREET.
1880.

LONDON:
PRINTED BY WILLIAM CLOWES AND SONS,
STAMFORD STREET AND CHARING CROSS.

NOTICE TO THE SECOND EDITION.

This Edition is an exact reprint of the First Edition, with the addition of two important Essays on the Ethics and Politics of Aristotle, which were found among the author's posthumous papers. They were originally published in 1876, in 'Fragments on Ethical Subjects, by the late George Grote,' but would have been included in the First Edition of this Work, had they been discovered in time. These Essays are the fruit of long and laborious study, and, so far as they extend, embody the writer's matured views upon the Ethics and the Politics: the two treatises whose omission from his published exposition of the Aristotelian philosophy has been most regretted.

The Essay on 'The Ethics of Aristotle' falls naturally into two divisions: the first treats of Happiness; the second of what, according to Aristotle, is the chief ingredient of Happiness, namely, Virtue. On Aristotle's own conception of Happiness, Mr. Grote dwells very minutely; turning it over on all sides, and looking at it from every point of view. While fully acknowledging its merits, he gives also the full measure of its defects. His criticisms on this head are in the author's

best style, and are no less important as regards I
discussion than as a commentary on Aristotle.

His handling of Aristotle's doctrine of Vir
equally subtle and instructive. Particularly st
are the remarks on the *Voluntary* and the *Invol*
and on προαίρεσις, or *deliberate preference.*

The treatment of the Virtues in detail is, unh
more fragmentary; but what he does say reg
Justice and Equity has a permanent interest.

The Essay on 'The Politics of Aristotle' m
studied in connection with the preceding. Alt
but a brief sketch, it is remarkable for the insight
it affords us into the most consummate political
of the ancient world.

PREFACE BY THE EDITORS

TO THE FIRST EDITION.

THE Historian of Greece, when closing his great narrative in the year 1856, promised to follow out in a separate work that speculative movement of the fourth century B.C. which upheld the supremacy of the Hellenic intellect long after the decline of Hellenic liberty. He had traced the beginnings of the movement in the famous chapter on Sokrates, but to do justice to its chief heroes—Plato and Aristotle—proved to be impossible within the limits of the History. When, however, the promised work appeared, after nine laborious years, it was found to compass only Plato and the other immediate companions of Sokrates, leaving a full half of the appointed task unperformed. Mr. Grote had already passed his 70th year, but saw in this only a reason for turning, without a moment's pause, to the arduous labour still before him. Thenceforth, in spite of failing strength and the increasing distraction of public business, he held steadily on till death overtook him in the middle of the course. What he was able to accomplish, though not what study he had gone through towards the remainder of his design, these volumes will show. The office of preparing and superintending their publication was entrusted to the

Aristotle, in case he should never reach the subject i
regular course of his general work. The expositioı
printed in full at the time (1868), and drew the atte
of students. It is now reprinted, with the promiı
due to its literary finish and intrinsic value, as a ch
—the last—in the body of the present work.

The long Appendix coming after is composed o
ments somewhat heterogeneous; but the different sec
were all written in the period since 1865, and all
excepting the last two (treating briefly of Epikurus
the Stoics), have a bearing upon the author's ge
design.

The first section — an historical account of an
theories of Universals—has already seen the light.
brings together, as nowhere else, all the chief refer
to the doctrine of Realism in Plato, and exhibits
directly antagonistic position taken up by Aristotl
wards his master. This it does so impressively
there could be no question of excluding it, even alth
it reproduces in part some of the matter of Chapter
on the Categories. Being composed, in 1867, later
this Chapter, it is on that account written with al
firmer a grasp. On finishing it as it stands, Mr. G
in a private letter, expressed himself in terms
deserve to be quoted:—"I never saw before so cl
the extreme importance of Aristotle's speculations a
guides and stimulants of mediæval philosophy. If
time to carry the account further, I should have
able to show how much the improved views of the

* In the Appendix to the senior editor's 'Manual of Mental and Science' (1867).

tion of Universals depended on the fact that more and more of the works of Aristotle, and better texts, became known to Albertus Magnus, Thomas Aquinas, and their successors. During the centuries immediately succeeding Boëthius, nothing of Aristotle except the Categories and the treatise De Interpretatione was known, and these in a Latin translation. Most fortunately the Categories was never put out of sight; and it is there that the doctrine of *Substantia Prima* stands clearly proclaimed."

The second section, or, rather, the part therein treating of Aristotle's doctrine of First Principles, is also a reprint. It was composed (in 1867) at the same time as the section on Universals, and was printed along with that; shorn, however, of the critical examination of Sir William Hamilton's views on Aristotle, which is now prefixed to the statement of the Aristotelian doctrine. Hamilton having (in Note A, appended to his edition of Reid's Works) claimed Aristotle as a supporter of the Philosophy of Common Sense, basing upon a long list of passages quoted, these were subjected by Mr. Grote to a searching criticism, the pointed vigour of which will be duly appreciated. The statement of his own view of Aristotle's doctrine, though containing little that may not be found at more places than one in the body of the present work, is yet reprinted, because iteration was his favourite art for impressing anything to which he attached as much importance as he did attach to this conviction of his, regarding the very heart of Aristotle's thought.

The long abstracts of six books of the Metaphysica and two books of the De Cœlo, next following in the

Appendix, are sections of a character altogether dif
from the foregoing. Evidently not intended for pu
tion, they have been included, partly as furnishing
indication of the labour the author underwent in se
to lay hold of his subject, partly because of their inh
value. From the first motive, they are here repro
as nearly as possible in the guise they wore as prelim
drafts, bestrewed with references. Their value co
in the fact that they give Mr. Grote's interpretati
the text of treatises at once exceedingly difficul
important: difficult, as is proved by the great diver
among commentators at many points; important
more for the deeper aspects of Aristotle's own sy
than for the speculations of the earlier Greek philoso
on which they are the classical authority. What rel
in the case of each treatise, the books abstracted (
translated) hold to the other books left untouche
specially indicated at the beginning of the third se
and at the end of the fourth. Here let it suffice to
tion that each abstract has a certain completene
itself, and at the same time a bond of connection wit
other. The abstract of the Metaphysica closes w
Aristotle descends to speak of the concrete hea
bodies, and just as much of the De Cœlo is given as
specially of these. This connection, whether or n
was present to the author's mind, enhances the val
the abstracts as here presented.*

In the remaining sections of the Appendix, not de

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* The author carried the abstract of De Cœlo a little farther, an
abruptly broke it off; probably finding himself borne too far away fr
logical treatises with which he was at the time dealing.

with Aristotle, the short account of Epikurus aims at setting in its true light a much-maligned system of thought. On writing it, in 1867, Mr. Grote remarked that the last word had not yet been said on Epikurus. The ethical part of the sketch was printed at the time:[a] the whole is now given. More fragmentary is the notice of the Stoics, as merely replacing passages that he considered inadequate in a sketch submitted to him. Since it formed part of his entire design to add to the treatment of Aristotle a full exposition both of Stoic and Epikurean doctrines, considered as the outgrowth of the Cynic and Kyrenaic theories already handled at the end of the 'Plato,' the two fragments may not unfitly close the present work.

Taken altogether, the two volumes are undoubtedly a most important contribution to the history of ancient thought. As regards Aristotle, the author's design must be gathered chiefly from the first eleven chapters,—begun as these were in 1865, and proceeded with in their order, till he was overtaken, in the act of composing the last, by the insidious malady which, after six months, finally carried him off. Perhaps the most striking feature in the exposition of the Organon, is the very full analysis given of the long treatise called Topica. While the other treatises have all, more or less, been drawn upon for the ordinary theory of Logic, the Topica, with its mixed logical and rhetorical bearings, has ceased to be embodied in modern schemes of discipline or study. Mr. Grote's profound interest in everything pertaining to Dialectic

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[a] Also in the 'Manual of Mental and Moral Science,' among 'Ethical Systems.'

drew him especially to this work, as the exhibitic detail of that habit of methodized discussion so de rooted in the Hellenic mind. And in the same coı tion it may be noted how the natural course of his work brought him, in the last months of his intelle activity, to tread again old and familiar ground. A —this time against Aristotle—for the decried Sopl and, once more, a picture of that dialetical missic Sokrates which for him had an imperishable charm, among the very last efforts of his pen.

Besides making up the Second Volume from the of Chapter XI., the editors have, throughout the v work, bestowed much attention on the notes and ı ences set down by the author with his usual co minuteness. It was deemed advisable to subject everywhere to a detailed verification; and, though editors speak on the matter with a diffidence best u stood by those who may have undergone a similar la it is hoped that a result not unworthy of the autho been attained. In different places additional refer have been supplied, either where there was an ob omission on the author's part, or in farther confirm of his views given in the text: such references, n to the works of Aristotle himself, it has not been thc necessary to signalize. Where, as once or twice i Appendix, a longer note in explanation seemed calle this has been printed within square brackets.

From the text some passages, where the itera seemed excessive, have been withheld, but only su it was thought the author would himself have struc

upon revision: wherever there was evidence that revision had been made, the iterations, freely employed for emphasis, have been allowed to stand. On rare occasions, interpolations and verbal changes have been made with the view of bringing out more clearly the meaning sought to be conveyed. It is impossible to be more deeply sensible than the editors are, of the responsibility they have thus incurred; but they have been guided by their very respect for the venerable author, and they were fortunate in the many opportunities they enjoyed of learning from his own lips the cast of his views on Aristotle.[a]

An index has been drawn up with some care; as was needful, if meant to be of real service to the readers of so elaborate a work.

It only remains to add that in printing the Greek of the notes, &c., the text of Waitz has been followed for the Organon (everywhere short of the beginning); the text of Bonitz, for the Metaphysica; and for other works of Aristotle, generally the Berlin edition. Regard was had, as far as the editors' knowledge went, to the author's own preferences in his reading.

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[a] It is but due to the younger editor to state that the heaviest part of all the work here indicated has been done by him.—A. B.

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ARISTOTLE.

CHAPTER I.

LIFE OF ARISTOTLE.

In my preceding work, 'Plato and the Other Companions of Sokrates,' I described a band of philosophers differing much from each other, but all emanating from Sokrates as common intellectual progenitor; all manifesting themselves wholly or principally in the composition of dialogues; and all living in an atmosphere of Hellenic freedom, as yet untroubled by any overruling imperial ascendancy from without. From that band, among whom Plato is *facilè princeps*, I now proceed to another, among whom the like pre-eminence belongs to Aristotle. This second band knew the Sokratic stimulus only as an historical tradition; they gradually passed, first from the Sokratic or Platonic dialogue—dramatic, colloquial, cross-examining—to the Aristotelian dialogue, semi-dramatic, rhetorical, counter-expository; and next to formal theorizing, ingenious solution and divination of special problems, historical criticism and abundant collections of detailed facts: moreover, they were witnesses of the extinction of freedom in Hellas, and of the rise of the Macedonian kingdom out of comparative nullity to the highest pinnacle of supremacy and mastership. Under the successors of Alexander, this extraneous supremacy, intermeddling and dictatorial, not only overruled the political movements of the Greeks, but also influenced powerfully the position and working of their philosophers; and would have become at once equally intermeddling even earlier, under Alexander himself, had not his whole time and personal energy been absorbed by insatiable thirst for eastern conquest, ending with an untimely death.

Aristotle was born at Stageira, an unimportant Hellenic colony in Thrace, which has obtained a lasting name in history from the fact of being his birthplace. It was situated in the

Strymonic Gulf, a little north of the isthmus which ter
in the mountainous promontory of Athos; its founde
Greeks from the island of Andros, reinforced afterw
additional immigrants from Chalkis in Eubœa. It w
other Grecian cities, autonomous—a distinct, self-go
community; but it afterwards became incorporated in t
federacy of free cities under the presidency of Olynthu
most material feature in its condition, at the period of Ar
birth, was, that it lay near the frontier of Macedonia,
far even from Pella, the residence of the Macedonia
Amyntas (father of Philip): Aristotle was born, not earl
392 B.C., nor later than 385–384 B.C. His father, Niko
was a citizen of Stageira, distinguished as a physician,
of some medical works, and boasting of being descende
the heroic *gens* of the Asklepiads; his mother, Phaes
also of good civic family, descended from one of t
Chalkidian colonists.[a] Moreover, Nikomachus was not
learned in his art, but was accepted as confidential pl
and friend of Amyntas, with whom he passed much of
—a circumstance of great moment to the future caree
son. We are told that among the Asklepiads the h
physical observation, and even manual training in dis
were imparted traditionally from father to son, from the
years, thus serving as preparation for medical practic
there were no written treatises to study.[b] The mind of
may thus have acquired that appetite for physiologic
which so many of his treatises indicate.

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[a] Diog. L. v. 10. This was probably among the reasons which induced Aristotle to prefer Chalkis as his place of temporary retirement, when he left Athens after the death of Alexander.

[b] Galen, De Anatomicis Administr. ii. 1. T. ii. pp. 280-281, ed. Kühn. *παρὰ τοῖς γονεῦσιν ἐκ παίδων ἀσκουμένοις, ὥσπερ ἀναγινώσκειν καὶ γράφειν, οὕτως ἀνατέμνειν*—(compare Plato—Protagoras, p. 328 A, p. 311 C).

Diog. L. v. 1. Ὁ δὲ Νικόμαχος ἦν ἀπὸ Νικομάχου τοῦ Μαχάονος τοῦ Ἀσκληπιοῦ, καθά φησιν Ἕρμιππος ἐν τῷ περὶ Ἀριστοτέλους καὶ συνεβίω Ἀμύντᾳ τῷ Μακεδόνων βασιλεῖ ἰατροῦ καὶ φίλου χρείᾳ.

We here learn that in the heroic genealogy of the Asklepiads, the son of Machaon himself bore the name of Nikomachus. I do not think that Will. v. Humboldt and Bernays are warranted in calling Aristotle "ein Halbgrieche," "kein vollbürtiger Hellene"—(Die Dialoge des Aristoteles, pp. 2-56-134). An Hellenic family which migr
Athens, Chalkis, Corinth, etc.
lish a colony on the coast of
Asia Minor, did not necessari
Hellenism. One cannot design
kritus, Xenokrates, Anaxagor
dokles, &c., half Greeks.

Diogenes here especially
mippus (B.C. 220-210), from wh
of his statements in this and ot
phies appear to have been deri
work of Hermippus seems to
entitled "Lives of the Phil
(v. 2), among which lives that
was one.

Hermippus mentioned, am
matters, communications made
by Strœbus (a person engag
service of Kallisthenes as
specting the condemnation and
of Kallisthenes in Baktria, b
Alexander (Plutarch, Alex. c.
what source did Hermippus d
statements made by Strœbus to

Respecting the character of his youth, there existed, even in antiquity, different accounts. We learn that he lost his father and mother while yet a youth, and that he came under the guardianship of Proxenus, a native of Atarneus who had settled at Stageira. According to one account, adopted apparently by the earliest witnesses preserved to us,[a] he was at first an extravagant youth, spent much of his paternal property, and then engaged himself to military service; of which he soon became weary, and went back to Stageira, turning to account the surgical building, apparatus, and medicines left by his father as a medical practitioner. After some time, we know not how long, he retired from this profession, shut up the building, and devoted himself to rhetoric and philosophy. He then went to Athens, and there entered himself in the school of Plato, at the age of thirty.[b] The philosophical life was thus (if this account be believed) a second choice, adopted comparatively late in life.[c] The other account, depending also upon good

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[a] Epikurus and Timæus. Ἐπίκουρος ἐν τῇ περὶ ἐπιτηδευμάτων ἐπιστολῇ (Eusebius, Præp. Ev. xv. 5)—Diogen. L. x. 8; Ælian. V. H. v. 9.

[b] An author named Eumêlus (cited by Diogenes, v. 6, ἐν τῇ πέμπτῃ τῶν ἱστοριῶν, but not otherwise known) stated that Aristotle came to Plato at the age of thirty, and that he lived altogether to seventy years of age, instead of sixty-three, as Hermippus and Apollodorus affirmed. Eumêlus conceived Aristotle as born in 392 B.C., and coming to Plato in 362 B.C. His chronological data are in harmony with the statements of Epikurus and Timæus respecting the early life of Aristotle. The Βίος Ἀνώνυμος given by Ménage recognizes two distinct accounts as to the age at which Aristotle died: one assigning to him 70 years, the other only 63.

[c] See the Fragments of Timæus in Didot, Fragmenta Historicorum Græcorum, Fr. 70-74; also Aristokles, ap. Eusebium, Præp. Evang. xv. 2; Diogenes, L. x. 8; Athenæus, viii. p. 354. Timæus called Aristotle σοφιστὴν ὀψιμαθῆ καὶ μισητόν, καὶ τὸ πολυτίμητον ἰατρεῖον ἀρτίως ἀποκεκλεικότα. The speaker in Athenæus designates him as ὁ φαρμακοπώλης. The terms used by these writers are illtempered and unbecoming in regard to so great a man as Aristotle; but this is irrelevant to the question, whether they do not describe, in perverted colouring, some real features in his earlier life, or whether there was not, at least, a chronological basis of possibility for them. That no such features were noticed by other enemies of Aristotle, such as Eubulides and Kephisodôrus, is a reason as far as it goes for not believing them to be real, yet not at all a conclusive reason; nor is the speaker in Athenæus exact when he says that Epikurus is the *only* witness, for we find Timæus making the same statements. The ἰατρεῖον (see Antiphanes, apud Polluc. iv. 183—Fragmenta Comic. cxxv., Meineke) of a Greek physician (more properly we should call the ἰατρὸς *a general practitioner and chemist*) was the repository of his materials and the scene of his important operations; for many of which instructions are given in the curious Hippokratic treatise entitled Κατ' Ἰητρεῖον, vol. iii. pp. 262-337 of the edition of M. Littré, who in his preface to the treatise, p. 265, remarks about Aristotle :—"Il paraît qu'Aristote, qui était de famille médicale, avoit renoncé à une officine de ce genre, d'une grande valeur." Stahr speaks of this ἰατρεῖον as if Aristotle had set up one *at Athens* (Aristotelia, p. 38), which the authorities do not assert; it was probably at Stageira. Ideler (Comm. ad. Aristot. Meteorol. iv. 3, 16, p. 433) considers this story about Aristotle's ἰατρεῖον to have been a fiction arising out of various expressions in his writings about the preparation of drugs—τὰ φάρμακα ἕψειν, &c. I think this is far-fetched. And when we find Aristokles rejecting the allegation about the ἰατρεῖον, by speaking of it as an ἄδοξον ἰατρεῖον, we can admit neither the justice of the epithet nor the ground of rejection.

witnesses, represents him as having come to Athens and er as pupil of Plato, at the early age of seventeen or eighte omits all mention of an antecedent period, occupied by mi service and a tentative of medical profession.[a] In both tl narratives, Aristotle appears as resident at Athens, and de himself to rhetoric and philosophy, from some period 360 B.C. down to the death of Plato in 347 B.C.; th according to the first of the two narratives, he begin philosophical career at a later age, while his whole life occ seventy years instead of sixty-two years.

During the interval, 367–360 B.C., Plato was much absent Athens, having paid two separate visits to Dionysius the yo at Syracuse. The time which he spent there at each visit explicitly given; but as far as we can conjecture from in allusions, it cannot have been less than a year at each, an possibly have been longer. If, therefore, Aristotle re Athens in 367 B.C. (as Hermippus represents) he cannot enjoyed continuous instructions from Plato for the three o years next ensuing.

However the facts may stand as to Aristotle's early life, is no doubt that in or before the year 362 B.C. he became dent at Athens, and that he remained there, profiting b society and lectures of Plato, until the death of the lat 347 B.C. Shortly after the loss of his master, he quitted A along with his fellow-pupil Xenokrates, and went to Ata which was at that time ruled by the despot Hermeias. despot was a remarkable man, who being a eunuch th bodily hurt when a child, and having become slave of a despot named Eubulus, had contrived to succeed him i supreme power, and governed the towns of Atarneus and with firmness and energy. Hermeias had been at Athen heard Plato's lectures, and had contracted friendship with totle; which friendship became farther cemented by the

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[a] This account rested originally (so far as we know) upon the statement of Hermippus (B.C. 220), and was adopted by Apollodôrus in his Chronology (B.C. 150), both of them good authorities, yet neither of them so early as Epikurus and Timæus. Diogenes Laertius and Dionysius of Halikarnassus alike follow Hermippus. Both the life of Aristotle ascribed to Ammonius, and the Anonymous Life first edited by Robbe (Leyden, 1861, p. 2), include the same strange chronological blunder: they affirm Aristotle to have come to Athens at the age of seventeen, and to have frequer society of *Sokrates* (who had bee more than thirty years) for three then to have gone to Plato at the twenty. Zeller imagines, and l it likely, that Aristotle may hav for a short time pupil with *Isokra* that the story of his having bee with *Sokrates* has arisen from co of the two names, which confusi been seen on several occasions Gesch. der Philos. der Griechen p. 15.)

riage of Aristotle, during his residence at Atarneus, with Pythias the niece of Hermeias.[a] For three years Aristotle and Xenokrates remained at Assos or Atarneus, whence they were then forced to escape by reason of the despot's death; for Mentor the Rhodian, general of the Persians in those regions, decoyed Hermeias out of the town under pretence of a diplomatic negociation, then perfidiously seized him, and sent him up as prisoner to the Persian king, by whose order he was hanged. Mentor at the same time seized the two towns and other possessions of Hermeias,[b] while Aristotle with his wife retired to Mitylene. His deep grief for the fate of Hermeias was testified in a noble hymn or pæan which he composed, and which still remains, as well as by an epigram inscribed on the statue of Hermeias at Delphi. We do not hear of his going elsewhere, until, two or three years afterwards (the exact date is differently reported), he was invited by Philip into Macedonia, to become preceptor to the young prince Alexander, then thirteen or fourteen years old. The reputation, which Aristotle himself had by this time established, doubtless coincided with the recollection of his father Nikomachus as physician and friend of Amyntas, in determining Philip to such a choice. Aristotle performed the duties required from him,[c] enjoying the confidence and favour both of Philip and Alexander, until the assassination of the former and the accession of the latter in 336 B.C. His principle residence during this period was in Macedonia, but he paid occasional visits to Athens,

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[a] Strabo, xiii. 610; Diodor. xvi. 52. It appears that Aristotle incurred censure, even from contemporary rivals, for this marriage with Pythias. On what ground we cannot exactly make out (Aristokles ap. Eusebium Præp. Ev. xv. 2), unless it be from her relationship to Hermeias. She died long before Aristotle, but he mentions her in his will in terms attesting the constant affection which had reigned between them until her death. Aristotle thought it right to reply to the censure in one of his letters to Antipater.

Aristokles (ap. Euseb. Præp. Ev. xv. 2) says that Aristotle did not marry Pythias until after the death of Hermeias, when she was compelled to save herself by flight, and was in distress and poverty.

Mr. Blakesley (Life of Aristotle, p. 36) and Oncken (Die Staatslehre des Aristoteles, p. 158) concur in thinking that the departure of Aristotle from Athens had nothing to do with the death of Plato, but was determined by the capture of Olynthus, and by the fear and dislike of Philip which that event engendered at Athens. But the fact that Xenokrates left Athens along with Aristotle disproves this supposition, and proves that the death of Plato was the real cause.

[b] Diog. Laert. v. 7-8. Diodorus ascribes this proceeding to Mentor the Rhodian; Strabo, to his brother Memnon. I think Diodorus is right. A remarkable passage in the Magna Moralia (genuine or spurious) of Aristotle, seems to me to identify the proceeding with Mentor (Aristot. Magn. Mor. i. 35, p. 1197, b. 21; as also the spurious second book of the Œkonomica, p. 1351, a. 33).

[c] It was probably during this period that Aristotle introduced to Alexander his friend the rhetor Theodektês of Phasêlis. Alexander took delight in the society of Theodektês, and testified this feeling, when he conquered Phasêlis, by demonstrations of affection and respect towards the statue of the rhetor, who had died during the intervening years—ἀποδιδοὺς τιμὴν τῇ γενομένῃ δι' Ἀριστοτέλην καὶ φιλοσοφίαν ὁμιλίᾳ πρὸς τὸν ἄνδρα (Plutarch, Alex. c. 17).

and allusion is made to certain diplomatic services whi(rendered to the Athenians at the court of Philip; moreov(must have spent some time at his native city Stageira,[a] \ had been among the many Greek cities captured and ruin(Philip during the Olynthian war of 349–347 B.C. Havin tained the consent and authority of Philip, Aristotle repai: Stageira for the purpose of directing the re-establishment (city. Recalling such of its dispersed inhabitants as cou collected, either out of the neighbouring villages or from distant parts, he is said to have drawn up laws, or framed lations for the returned citizens and new comers. He reason to complain of various rivals who intrigued against gave him much trouble, and obstructed the complete renov of the city; but, notwithstanding, his services were such an annual festival was instituted to commemorate them.[b] farther stated, that at some time during this period he l school (analogous to the Academy at Athens) in the Nympl of the place called Mieza; where stone seats and shady v ennobled by the name of Aristotle, were still shown even i days of Plutarch.[c]

In 336 B.C. Alexander became king of Macedonia, and hi projects for conquest, first of Persia, next of other peoples k and unknown, left him no leisure for anything but militar imperial occupations. It was in the ensuing year (335 when the preparations for the Persian expedition were

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[a] It is to this period of Aristotle's life that the passage extracted from his letters in Demetrius (so-called *περὶ Ἑρμηνείας*) refers. *ὡς Ἀριστοτέλης φησίν—ἐγὼ ἐκ μὲν Ἀθηνῶν εἰς Στάγειρα ἦλθον διὰ τὸν βασιλέα τὸν μέγαν, ἐκ δὲ Σταγείρων εἰς Ἀθήνας διὰ τὸν χειμῶνα τὸν μέγαν*—s. 29.

We shall hardly consider this double employment of the epithet *μγέαν* as an instance of that success in epistolary style, which Demetrius ascribes to Aristotle (s. 239); but the passage proves Aristotle's visits both to Stageira and to Athens. The very cold winters of the Chalkidic peninsula were severely felt by the Greeks (Plato—Symposion, p. 220), and may well have served as motive to Aristotle for going from Stageira to Athens.

[b] Ammonius, Vit. Aristot. See the curious statements given by Dion Chrysostom, out of the epistles of Aristotle; Orat. ii. p. 100, xlvii. p. 225, Reiske.

Respecting the allusions made in these statements to various persons who were reluctant to return out of the separate villages into the restored city, compare what Xenophon says about the *διοίκισις*, and subsequent restitution, of Ma Hellenica, v. 2, 1-8, vi. 5, 3-6.

[c] Plutarch, Alexander, c. 7. Plutarch calls the *Nymphæum*, sidered by Stahr (Aristotelia, i. p. to be probably the same as wha denominates the *Museum* at Stage H. xvi. c. 23); but Zeller (p. 23, n Geier, holds that Mieza lay S.W. c in Emathia, far from Stageira. P seems to imply that Aristotle wa lished along with Alexander at M Philip.

Compare, for these facts of the bi of Aristotle, Stahr, Aristotelia,] pp. 86-94, 103-106.

I conceive that it was during th dence in Macedonia and at Pel Aristotle erected the cenotaph in of Hermeias, which is so contemp derided by the Chian poet Theok his epigram, Diog. L. v. 11. The (is very severe on Aristotle, for pr Pella to the Academy as a res ascribing such preference to the cies of an ungovernable stomach.

completed, ready for its execution in the following spring, that Aristotle transferred his residence to Athens. The Platonic philosophical school in which he had studied was now conducted by Xenokrates as Scholarch, having passed at the death of Plato, in 347 B.C., to his nephew Speusippus, and from the latter to Xenokrates in 339 B.C. Aristotle established for himself a new and rival school on the eastern side of Athens, in the gymnasium attached to the temple of Apollo Lykeius, and deriving from thence the name by which it was commonly known —the Lykeium. In that school, and in the garden adjoining, he continued to lecture or teach, during the succeeding twelve years, comprising the life and the brilliant conquests of Alexander. Much of his instruction is said to have been given while walking in the garden, from whence the students and the sect derived the title of Peripatetics. In the business of his school and the composition of his works all his time was occupied; and his scholars soon became so numerous that he found it convenient to desire them to elect from themselves every ten days a rector to maintain order, as Xenokrates had already done at the Academy.[a] Aristotle farther maintained correspondence, not merely with Alexander and Antipater but also with Themison, one of the princes of Cyprus, as Isokrates had corresponded with Nikokles, and Plato with Dionysius of Syracuse.[b]

In June, 323 B.C., occurred the premature and unexpected decease of the great Macedonian conqueror, aged 32 years and 8 months, by a violent fever at Babylon. So vast was his power, and so unmeasured his ambition, that the sudden removal of such a man operated as a shock to the hopes and fears of almost

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[a] Diog. L. v. 4. Brandis notes it as a feature in Aristotle's character (p. 65), that he abstained from meddling with public affairs at Athens. But we must remember, that, not being a citizen of Athens, Aristotle was not competent to meddle personally. His great and respected philosophical competitor, Xenokrates (a non-citizen or metic as well as he), was so far from being in a condition to meddle with public affairs, that he was once even arrested for not having paid in due season his μετοίκιον, or capitation-tax imposed upon metics. He was liberated, according to one story, by Lykurgus (Plutarch, Vit. x. Oratt. p. 842); according to another story (seemingly more probable), by Demetrius Phalereus (Diog. La. iv. 14). The anonymous life of Aristotle published by Robbe (Leyden, 1861, p. 3), takes due notice of Aristotle's position at Athens as a metic.

[b] Aristotle addressed to Themison a composition now lost, but well known in antiquity, called Προτρεπτικός. It was probably a dialogue; and was intended as an encouragement to the study of philosophy. See Rose, Aristot. Pseud. pp. 69-72, who gives a very interesting fragment of it out of Stobæus.

We have the titles of two lost works of Aristotle—Περὶ Βασιλείας, and Ἀλέξανδρος, ἢ ὑπὲρ ἀποίκων (or ἀποικιῶν). Both seem to have been dialogues. In one, or in both, he gave advice to Alexander respecting the manner of ruling his newly acquired empire in Asia; and respecting the relations proper to be established between Hellenes and native Asiatics (see Rose, Arist. Pseud. pp. 92-96; Bernays, Die Dialoge des Aristot. pp. 51-57).

every one, both in Greece and Asia. It produced an change in the position of Aristotle at Athens.

To understand what that position really was, we must it in connection with his Macedonian sympathies, and w contemporaneous political sentiment at Athens. It was middle of the year 335 B.C., that Alexander put down b the revolt of the Thebans, took their city by assault, dem it altogether (leaving nothing but the citadel called Ka occupied by a Macedonian garrison), and divided its te between two other Bœotian towns. Immediately afte terror-striking act, he demanded from the Athenians (wl sympathized warmly with Thebes, though without ove of assistance) the surrender of their principal anti-Mace politicians. That demand having been refused, he at fir pared to extort compliance at the point of the sword, b persuaded, not without difficulty, to renounce such int and to be content with the voluntary exile of Ephialt Charidemus from Athens. Though the unanimous vote Grecian Synod at Corinth constituted him Imperator, the be no doubt that the prevalent sentiment in Greece towar was that of fear and dislike; especially among the Athe whose dignity was most deeply mortified, and to who restriction of free speech was the most painful.[a]

Now it was just at this moment (in 335 B.C.) that A came to Athens and opened his school. We cannot doul he was already known and esteemed as the author of published writings. But the prominent mark by which one now distinguished him, was, that he had been for years confidential preceptor of Alexander, and was still n less consulted by that prince, as well as sustained by the ship of Antipater, viceroy of Macedonia during the king's al Aristotle was regarded as philo-Macedonian, and to a extent, anti-Hellenic—the sentiment expressed towards the unfriendly epigram of the contemporary Chian poet kritus.[b] His new school, originally opened under the pro and patronage of Alexander and Antipater, continued associated with their names, by that large proportion of At citizens who held anti-Macedonian sentiments. Alexander

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[a] See History of Greece, chap. xci. pp. 18, 41, 64.

[b] Diog. L. v. 11.

Ἑρμίου εὐνούχου ἠδ' Εὐβούλου ἅμα δούλου
Σῆμα κενὸν κενόφρων τεῦξεν Ἀριστοτέλης·
Ὃς διὰ τὴν ἀκρατῆ γαστρὸς φύσ ναίειν
Ἀντ' Ἀκαδημείας Βορβόρου χοαῖς.

Cf. Plutarch, De Exilio, p. 603.

the statue of Aristotle to be erected in Athens,[a] and sent to him continual presents of money, usefully employed by the philosopher in the prosecution of his physical and zoological researches,[b] as well as in the purchase of books. Moreover, Aristotle remained in constant and friendly correspondence with Antipater, the resident viceroy at Pella,[c] during the absence of Alexander in Asia. Letters of recommendation from Aristotle to the Macedonian rulers were often given and found useful: several of them were preserved and published afterwards. There is even reason to believe that the son of Antipater—Kassander, afterwards viceroy or king of Macedonia, was among his pupils.[d]

I have recounted elsewhere how the character of Alexander became gradually corrupted by unexampled success and Asiatic influences;[e] how he thus came to feel less affection and esteem for Aristotle, to whom he well knew that his newly acquired imperial and semi-divine pretensions were not likely to be acceptable; how, on occasion of the cruel sentence passed on Kallisthenes, he threatened even to punish Aristotle himself, as having recommended Kallisthenes, and as sympathizing with the same free spirit; lastly, how Alexander became more or less alienated, not only from the society of Hellenic citizens, but even from his faithful viceroy, the Macedonian Antipater. But these changed relations between Aristotle and Alexander did not come before the notice of the Athenians, nor alter the point of view in which they regarded the philosopher; the rather, since the relations of Aristotle with Antipater continued as intimate as ever.

It will thus appear, that though all the preserved writings of Aristotle are imbued with a thoroughly independent spirit of theorizing contemplation and lettered industry, uncorrupted by any servility or political bias—yet his position during the twelve

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[a] Stahr, Aristotelia, vol. ii. p. 290.

[b] Athenæus, ix. 398; Pliny, H. N. viii. c. 16. Athenæus alludes to 800 talents as having been given by Alexander to Aristotle for this purpose. Pliny tells us that Alexander put thousands of men at his service for enquiry and investigation. The general fact is all that we can state with confidence, without pretending to verify amounts.

[c] Vit. Aristotelis, Leyden, 1861, Robbe, pp. 4-6; Aristokles ap. Eusebium Præp. Evang. xv. 2. Respecting the Epistles of Aristotle, and the collection thereof by Artemon, see Rose, Aristoteles Pseudepigr. pp. 594-598.

[d] We may infer this fact from the insulting reply made by Alexander, not long before his death, to Kassander, who had just then joined him for the first time at Babylon, having been sent by Antipater at the head of a reinforcement. Some recent comers from Greece complained to Alexander of having been ill-used by Antipater. Kassander being present at the complaint, endeavoured to justify his father and to invalidate their testimony, upon which Alexander silenced him by the remark that he was giving a specimen of sophistical duplicity learnt from Aristotle. Ταῦτα ἐκεῖνα σοφίσματα τῶν Ἀριστοτέλους εἰς ἑκάτερον τῶν λόγων, οἰμωξομένων, ἂν καὶ μικρὸν ἀδικοῦντες τοὺς ἀνθρώπους φανῆτε (Plutarch, Alex. 74).

[e] Histor. of Greece, ch. xciv. pp. 291, 301, 341; Plutarch, Alexand. c. lv.; Dion Chrysostom. Orat. 64, p. 338, Reiske.

years between 335–323 B.C. inevitably presented him t
Athenians as the macedonizing philosopher, parallel with
kion as the macedonizing politician, and in pointed anti
to Xenokrates at the Academy, who was attached to the d
cratical constitution, and refused kingly presents. Besides
enmity which he was sure to incur, as an acute and self-thi
philosopher, from theology and the other anti-philosophical
in the minds of ordinary men, Aristotle thus became the
of unfriendly sentiment from many Athenian patriots,[a] wh
sidered the school of Plato generally as hostile to popular li
and who had before their eyes examples of individual Plato
ruling their respective cities with a sceptre forcibly usurped

Such sentiment was probably aggravated by the unpara
and offensive Macedonian demonstration at the Olympic fe
of 324 B.C. It was on that occasion that Alexander, abo
year prior to his decease, sent down a formal rescript, whic
read publicly to the assembled crowd by a herald with
voice; ordering every Grecian city to recall all exiles wh
been banished by judicial sentence, and intimating, that
rescript were not obeyed spontaneously, Antipater wou
instructed to compel the execution of it by force. A
number of the exiles whose restitution was thus ordered,
present on the plain of Olympia, and heard the order procla
doubtless with undisguised triumph and exultation. So
the keener must have been the disgust and humiliation a
the other Grecian hearers, who saw the autonomy of
separate city violently trampled down, without even the pr
of enquiry, by this high-handed sentence of the Macedonia
queror. Among the Athenians especially, the resentmen
was profound; and a vote was passed appointing deput
visit Alexander in person, for the purpose of remonst

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[a] The statement of Aristokles (ap. Eusebium, Præp. Ev. xv. 2) is doubtless just—φανερὸν οὖν, ὅτι καθάπερ πολλοῖς καὶ ἄλλοις, οὕτω καὶ Ἀριστοτέλει συνέβη, διά τε τὰς πρὸς τοὺς βασιλεῖς φιλίας καὶ διὰ τὴν ἐν τοῖς λόγοις ὑπεροχήν, ὑπὸ τῶν τότε σοφιστῶν φθονεῖσθαι. The like is said by the rhetor Aristeides—Or. xii. p. 144, Dindorf.

I have already observed that the phrase of "Halbgrieche" applied by Bernays and W. v. Humboldt to Aristotle (Bernays, Die Dialoge des Aristoteles, p. 2, p. 134) is not accurate literally, unless we choose to treat all the Hellenic colonies as half-Greek. His ancestry was on both sides fully Hellenic. But it is true of him, in the same metaphorica
in which it is true of Phokion. A
was semi-Macedonian in his sym
He had no attachment to Hella
organized system autonomous, self
with an Hellenic city as president
attachment would have been con
by Perikles, Archidamus, and
nondas, as one among the cons
indispensable to Hellenic patrioti

[b] Quintilian—Declamat. 268.
ignorat, ex ipsâ Socratis (quo vel
omnis philosophia manasse c
scholâ evasisse tyrannos et hoste
suæ?" Compare Athenæus, x
509.

against it. The orator Demosthenes, who happened to be named Archi-Theôrus of Athens (chief of the solemn legation sent to represent Athens) at this Olympic festival, incurred severe reproach from his accuser Deinarchus, for having even been seen in personal conversation with the Macedonian officer who had arrived from Asia as bearer of this odious rescript.[a]

Now it happened that this officer, the bearer of the rescript, was Nikanor of Stageira;[b] son of Proxenus who had been Aristotle's early guardian, and himself the cherished friend or ward, ultimately the son-in-law, of the philosopher. We may be certain that Aristotle would gladly embrace the opportunity of seeing again this attached friend, returning after a long absence on service in Asia; that he would be present with him at the Olympic festival, perhaps receive a visit from him at Athens also. And the unpopularity of Aristotle at Athens, as identified with Macedonian imperial authority, would thus be aggravated by his notorious personal alliance with his fellow-citizen Nikanor, the bearer of that rescript in which such authority had been most odiously manifested.

During the twelve or thirteen years[c] of Aristotle's teaching

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[a] See the description of this event in History of Greece, ch. xcv. p. 416.

There is reason for supposing that Hypereides also (as well as Deinarchus) inveighed against Demosthenes for having publicly sought the company of Nikanor at this Olympic festival. At least we know that Hypereides, in his oration against Demosthenes, made express allusion to Nikanor. See Harpokration *v.* Νικάνωρ.

The exordium prefixed to the Pseud-Aristotelian Rhetorica ad Alexandrum, announces that discourse to have been composed pursuant to the desire of Alexander; and notices especially one message transmitted by him to Aristotle through Nikanor (p. 1420 a. 6, 1421 a. 26-38, καθάπερ ἡμῖν ἐδήλωσε Νικάνωρ, &c.).

[b] Diodor. xviii. 8. διόπερ ὑπογύων ὄντων τῶν Ὀλυμπίων ἐξέπεμψεν (Alexander) εἰς τὴν Ἑλλάδα Νικάνορα τὸν Σταγειρίτην, δοὺς ἐπιστολὴν περὶ τῆς καθόδου.

Antipater, when re-distributing the satrapies of the Macedonian empire, after the death both of Alexander and of Perdikkas, appointed Nikanor prefect or satrap of Kappadokia (Arrian, Τὰ μετὰ Ἀλέξανδρον, apud Photium, cod. 92, s. 37, Didot).

Ammonius, in the life of Aristotle, mentions Nikanor as son of Proxenus of Atarneus. Sextus Empiricus alludes to Nikanor as son-in-law of Aristotle (adv. Mathematicos, sect. 258, p. 271, Fabr.). See Ménage ad Diogen. Laert. v. 12. Robbe's Life of Aristotle also (Leyden, 1861, p. 2) mentions Nikanor as son of Proxenus.

Nikanor was appointed afterwards (in 318 B.C., five years later than the death of Aristotle) by Kassander, son of Antipater, to be commander of the Macedonian garrison which occupied Munychia, as a controlling force over Athens (Diodor. xviii. 64). It will be seen in my History of Greece (ch. xcvi. p. 458) that Kassander was at that moment playing a difficult game, his father Antipater being just dead; that he could only get possession of Munychia by artifice, and that it was important for him to entrust the mission to an officer who already had connections at Athens; that Nikanor, as adopted son of Aristotle, possessed probably beforehand acquaintance with Phokion and the other macedonizing leaders at Athens; so that the ready way in which Phokion now fell into co-operation with him is the more easily explained.

Nikanor, however, was put to death by Kassander himself, some months afterwards.

[c] There remain small fragments of an oration of Demades in defence of his administration, or political activity, for twelve years—ὑπὲρ τῆς δωδεκαετίας (Demad. Fragm, 179, 32). The twelve

and Alexander's reign, Athens was administered by macedoı citizens, with Phokion and Demades at their head. Undeı circumstances, the enmity of those who hated the im philosopher could not pass into act; nor was it within the templation of any one, that only one year after that re which insulted the great Pan-Hellenic festival, the illus conqueror who issued it would die of fever, in the vigour age and at the height of his power (June, 323 B.C.). But as as the news of his decease, coming by surprise both on fı and enemies, became confirmed, the suppressed anti-Maced sentiment burst forth in powerful tide, not merely at At but also throughout other parts of Greece. There resulte struggle against Antipater, known as the Lamian war:[a] a g struggle, at first promising well, but too soon put dov superior force, and ending in the occupation of Athens by pater with a Macedonian garrison in September, 322 B. well as in the extinction of free speech and free citizensh the suicide of Demosthenes and the execution of Hypereide

During the year immediately succeeding the death of Alexa the anti-Macedonian sentiment continued so vehemently ponderant at Athens, that several of the leading citizens, fı of Phokion, left the city to join Antipater, though Phokion self remained, opposing ineffectually the movement. I during this period that the enemies of Aristotle found a fa able opportunity for assailing him. An indictment oı score of impiety was preferred against him by Eurymedc Hierophant (chief priest of the Eleusinian Demeter), aid Demophilus, son of the historian Ephorus. The Hymn or (still existing), which Aristotle had composed in commemo of the death, and in praise of the character, of the eı Hermeias,[b] was arraigned as a mark of impiety; besides v Aristotle had erected at Delphi a statue of Hermeias wi honorific inscription, and was even alleged to have o sacrifices to him as to a god. In the published writir Aristotle, too, the accusers found various heretical doct

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years of Demades, however, seem to be counted from the battle of Chæroneia in 338 B.C.; so that they end in B.C. 326. See Clinton, Fast. Hellen. B.C. 326.

[a] For the account of the Lamian war, see History of Greece, ch. xcv. pp. 420-440. As to the anti Macedonian sentiment prevalent at Athens, see Diodorus, xviii. 10.

[b] Diogen. L. v. 5; Athenæus, xv. 696. The name of Demophilus was mentioned by Favorinus as also subscribed to the indictment: this Demophilus w bably son of the historian Ephoru Val. Rose, Aristoteles Pseudepig p. 582. He took part afterwards indictment against Phokion. As torian, he completed the narrative Sacred War, which his father I had left unfinished (Diodor. xv The words of Athenæus, as far a understand them, seem to imply composed a speech for the Hie Eurymedon.

suitable for sustaining their indictment; as, for example, the declaration that prayer and sacrifices to the gods were of no avail.[a] But there can be little doubt that the Hymn, Ode, or Pæan, in honour of Hermeias, would be more offensive to the feelings of an ordinary Athenian than any philosophical dogma extracted from the cautious prose compositions of Aristotle. It is a hymn, of noble thought and dignified measure, addressed to Virtue ('Αρετὴ—masculine or military Virtue), in which are extolled the semi-divine or heroic persons who had fought, endured, and perished in her service. The name and exploits of Hermeias are here introduced as the closing parallel and example in a list beginning with Hêraklês, the Dioskûri, Achilles, and Ajax. Now the poet Kallistratus, in his memorable Skolion, offers a like compliment to Harmodius and Aristogeiton; and Pindar, to several free Greeks of noble family, who paid highly for his epinician Odes now remaining. But all the persons thus complimented were such as had gained prizes at the sacred festivals, or had distinguished themselves in other ways which the public were predisposed to honour; whereas Hermeias was a eunuch, who began by being a slave, and ended by becoming despot over a free Grecian community, without any exploit conspicuous to the eye. To many of the Athenian public it would seem insult, and even impiety, to couple Hermeias with the greatest personages of Hellenic mythology, as a successful competitor for heroic honours. We need only read the invective of Claudian against Eutropius, to appreciate the incredible bitterness of indignation and contempt, which was suggested by the spectacle of a eunuch and a slave exercising high public functions.[b] And the character of a despot was, to the anti-mace-

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[a] See the passages from Origen advers. Celsum, cited in Stahr's Aristotelia, vol. i. p. 146.

Among the titles of the lost works of Aristotle (No. 14 in the Catalogue of Diogenes Laertius, No. 9 in that of the Anonymous; see Rose, Aristoteles Pseudepigraphus, pp. 12-18), one is Περὶ Εὐχῆς. From its position in the Catalogue, it seems plainly to have been a dialogue; and the dialogues were the most popular and best-known writings of Aristotle. Now we know from the Nikomach. Ethica (x. 8, 1178, b. 6-32) that Aristotle declared all constructive effort, and all action with a view to external ends, to be inconsistent with the Divine Nature, which was blest exclusively in theorizing and contemplation. If he advocated the same doctrine in the dialogue Περὶ Εὐχῆς, he must have contended that persons praying could have no additional chance of obtaining the benefits which they prayed for; and this would have placed him in conflict with the received opinions.

Respecting the dialogue Περὶ Εὐχῆς, see Bernays, Die Dialoge des Aristoteles, pp. 120-122; and Rose, Arist. Pseudepigr. pp. 67, 68.

[b] "Omnia cesserunt, eunucho consule, monstra:" this is among the bitter lines of Claudian, too numerous to cite; but they well deserve to be read in the original. Compare also, about the ancient sentiment towards eunuchs, Herodotus, viii. 106; Xenophon, Cyropæd. viii. 3, 15.

Apellikon thought it worth while to compose a special treatise, for the purpose of vindicating Aristotle from the aspersions circulated in regard to his relations

donizing Athenians, hardly less odious than either of th others combined with it in Hermeias.

Taking these particulars into account, we shall see tl charge thus sustained, when preferred by a venerable p during the prevalence of strong anti-Macedonian feeling, ag a notorious friend of Antipater and Nikanor, was quite suff to alarm the prudence of the accused. Aristotle bowed t storm (if indeed he had not already left Athens, along other philo-Macedonians) and retired to Chalkis (in Eul then under garrison by Antipater. An accused person at A had always the option of leaving the city, at any time befo day of trial; Sokrates might have retired, and obtained pe security in the same manner, if he had chosen to do so. totle must have been served, of course, with due notice according to Athenian custom, the indictment would be br into court in his absence, as if he had been present; va accusers, among them Demochares,[b] the nephew of Demostl would probably speak in support of it; and Aristotle must been found guilty in his absence. But there is no grou believing that he intended to abandon Athens, and li Chalkis, permanently; the rather, inasmuch as he see

with Hermeias. Aristokles speaks of the vindication as successful (ap. Euseb. P. E. xv. 2).

[a] That Chalkis was among the Grecian towns then occupied by a Macedonian garrison is the statement of Brandis (Entwickelungen der Griechischen Philosophie, i. p. 391, 1862). Though I find no direct authority for this statement, I adopt it as probable in the highest degree.

[b] Aristokles (ap. Eusebium Præp. Ev. xv. 2) takes notice of the allegations of Demochares against Aristotle: That letters of Aristotle had been detected or captured (ἁλῶναι), giving information injurious to Athens: That Aristotle had betrayed Stageira to Philip: That when Philip, after the capture of Olynthus, was selling into slavery the Olynthian prisoners, Aristotle was present at the auction (ἐπὶ τοῦ λαφυροπωλείου), and pointed out to him which among the prisoners were men of the largest property.

We do not know upon what foundation of fact (if upon any) these allegations were advanced by a contemporary orator. But they are curious, as illustrating the view taken of Aristotle by his enemies. They must have been delivered as parts of one of the accusatory speeches on Aristotle's trial *par contumace:* for this was the earliest occasion on Aristotle's enemies had the opp of publicly proclaiming their a against him, and they would omit to avail themselves of i Hierophant, the principal accuse be supported by other speakers f him; just as Melêtus, the a Sokrates, was supported by Any Lykon. The ἱστορίαι of Den were not composed until sevente after this epoch—certainly no than 306 B.C.—sixteen years a death of Aristotle, when his was not prominently before the Nevertheless Demochares may have included these accusatory tions against the philosopher in ρίαι, as well as in his publishe His invectives against Antipa the friends of Antipater, were r and bitter:—Polybius, xii. 13, 9 Brutus, 83; compare Demochar menta, in Didot's Fragm. Hist Græcorum, vol. ii. p. 448. Phi indicted Sophokles (under th παρανόμων) for the law which t had proposed in 306 B.C. ag philosophers at Athens, had been of Aristotle, Ἀριστοτέλους Athenæus, xiii. 610.

have left not only his school, but his library, at Athens under the charge of Theophrastus. Aristotle knew that the Macedonian chiefs would not forego supremacy over Greece without a struggle; and, being in personal correspondence with Antipater himself, he would receive direct assurance of this resolution, if assurance were needed. In a question of military force, Aristotle probably felt satisfied that Macedonian arms must prevail; after which the affairs of Athens would be again administered, at least in the same spirit, as they had been before Alexander's death, if not with more complete servility. He would then have returned thither to resume his school, in competition with that of Plato under Xenokrates at the Academy; for he must have been well aware that the reputation of Athens, as central hearth of Hellenic letters and philosophy, could not be transferred to Chalkis or to any other city.[a]

This is what would probably have occurred, when the Lamian war was finished and the Macedonian garrison installed at Athens, in Sept. 322 B.C.—had Aristotle's life lasted longer. But in or about that very period, a little before the death of Demosthenes, he died at Chalkis of illness; having for some time been troubled with indigestion and weakness of stomach.[b] The assertion of Eumêlus and others that he took poison, appears a mere fiction suggested by the analogy of Sokrates.[c] One of his latest compositions was a defence of himself against the charge of impiety, and against the allegations of his accusers (as reported to him, or published) in support of it. A sentence of this defence remains,[d] wherein he points out the inconsistency

[a] We may apply here the same remark that Dionysius makes about Deinarchus as a speech-maker; when Deinarchus retired to Chalkis, no one would send to Chalkis for a speech: Οὐ γὰρ εἰς Χαλκίδα ἐν τινες ἔπλεον λόγων χάριν, ἢ ἰδίων, ἢ δημοσίων· οὐ γὰρ τέλεον ἠπόρουν οὕτω λόγων. Dionys. Halic. Dinar. p. 639.

[b] Censorinus, De Die Natali—Ménage ad Diogen. Laert. v. 16.

[c] Diogenes L. however (v. 8) gave credit to this story, as we may see by his Epigram.

[d] Athenæus xv. p. 696, 697. Probably this reply of Aristotle (though Zeller, p. 33, declares it to be spurious, in my judgment very gratuitously), may have been suited to the words of the speech (not preserved to us) which it was intended to answer. But the reply does not meet what I conceive to have been the real feeling in the minds of those who originated the charge. The logical inconsistency which he points out did not appear an inconsistency to Greeks generally. Aristotle had rendered to the deceased Hermeias the same honours (though less magnificent in degree) as Alexander to the deceased Hephæstion, and the Amphipolitans to the deceased Brasidas (Thucyd. v. 11; Aristotel. Ethic. Nikom. v. 7. 1). In both these cases a tomb was erected to the deceased, implying mortality; and permanent sacrifices were offered to him, implying immortality: yet these two proceedings did not appear to involve any logical contradiction, in the eyes of the worshippers. That which offended the Athenians, really, in the case of Aristotle, was the worthlessness of Hermeias, to whom he rendered these prodigious honours—eunuch, slave, and despot; an assemblage of what they considered mean attributes. The solemn measure and character of a Pæan was disgraced by being applied to such a vile person.

of his accusers in affirming that he intended to honour Herm
as an immortal, while he had notoriously erected a tomb,
had celebrated funeral ceremonies to him as a mortal.
in a letter to Antipater, he said (among other things) that At
was a desirable residence, but that the prevalence of sycoph
or false accusation was a sad drawback to its value; more
that he had retired to Chalkis, in order that the Ather
might not have the opportunity of sinning a second time ag
philosophy, as they had already done once, in the perso
Sokrates.[a] In the same or another letter to Antipater
adverted to an honorific tribute which had been voted to
at Delphi before the death of Alexander, but the vote for w
had been since rescinded. He intimated that this disapp
ment was not indifferent to him, yet at the same time no se
annoyance.[b]

In regard to the person and habits of Aristotle, we
informed that he had thin legs and small eyes; that in sp
he was somewhat lisping; that his attire was elegant and
showy; that his table was well-served—according to his ene
luxurious above the measure of philosophy. His pleasing
persuasive manners are especially attested by Antipater,
letter, apparently of marked sympathy and esteem, written sh
after the philosopher's death.[c] He was deeply attached to

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[a] Ammonius, Vit. Aristotelis, p. 48, in Buhle's Aristot. vol. i.; Ménage ad Diog. Laert. v. 5, with the passage from Origen (adv. Celsum) there cited; Ælian, V. H. iii. 36.

We learn from Diogenes that Theophrastus was indicted for impiety by Agnonides; but such was the esteem in which Theophrastus was held, that the indictment utterly failed; and Agnonides was very near incurring the fine which every accuser had to pay, if he did not obtain one-fifth of the suffrages of the Dikasts (Diog. L. v. 37). Now Agnonides comes forward principally as the vehement accuser of Phokion four years after the death of Aristotle, during the few months of democratical reaction brought about by the edicts and interference of Polysperchon (318 B.C.) after the death of Antipater (History of Greece, ch. xcvi. p. 477). Agnonides must have felt himself encouraged by what had happened five years before with Aristotle, to think that he would succeed in a similar charge against Theophrastus. But Theophrastus was personally esteemed; he was not intimately allied with Antipater, or directly protected by him; moreover, he had composed no hymn to a person like Hermeias. A ingly, the indictment recoiled up accuser himself.

[b] Ælian, V. H. xiv. 1. Ἀριστο ἐπεί τις αὐτοῦ ἀφείλετο τὰς ψηφισθει Δελφοῖς τιμάς, ἐπιστέλλων πρὸς Ἀντί περὶ τούτων, φησίν—Ὑπὲρ τῶν ἐν Δ ψηφισθέντων μοι, καὶ ὧν ἀφῄρημα οὕτως ἔχω ὡς μήτε μοι σφόδρα αὐτῶν, μήτε μοι μηδὲν μέλειν. The of Aristotle at Athens was befo eyes of Alexander of Aphrodisias A.D. 200. See Zumpt, Scholarch Athen, p. 74.

[c] Plutarch—Alkibiad. et Co Comp. c. 3; Aristeid. cum Cato Comp. c. 2. The accusation of and dainty feeding was urged agai by his contemporary assailant Ke dorus (Eusebius, Pr. Ev. xv. 2); ing to some statements, by Plat Ælian, V. H. iii. 19. Contrast t gram of the contemporary poet The of Chios, who censures Aristotle ἀκρατῆ γαστρὸς φύσιν, with the s drama of the poet Lykophron (ap. næum, ii. p. 55), in which he deri suppers of philosophers, for their and unattractive food: compare the of Antiphanes, ap. Athenæ. iii. p.

wife Pythias, by whom he had a daughter who bore the same name. His wife having died after some years, he then remarried with a woman of Stageira, named Herpyllis, who bore him a son called Nikomachus. Herpyllis lived with him until his death; and the constant as well as reciprocal attachment between them is attested by his last will.[a] At the time of his death, his daughter Pythias had not yet attained marriageable age; Nikomachus was probably a child.

The will or testament of the philosopher is preserved.[b] Its first words constitute Antipater his general executor in the most comprehensive terms,[c] words well calculated to ensure that his directions should be really carried into effect; since not only was Antipater now the supreme potentate, but Nikanor, the chief beneficiary under the will, was in his service and dependent on his orders. Aristotle then proceeds to declare that Nikanor shall become his son-in-law, by marriage with his daughter Pythias as soon as she shall attain suitable age; also, his general heir, subject to certain particular bequests and directions, and the guardian of his infant son Nikomachus. Nikanor being at that time on service, and perhaps in Asia, Aristotle directs that four friends (named Aristomenes, Timarchus, Hipparchus, Diotelês) shall take provisional care of Herpyllis, his two children, and his effects, until Nikanor can appear and act: Theophrastus is to be conjoined with these four if he chooses, and if circumstances permit him.[d] The daughter

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and Diog. L. vii. 27; Timæus ap. Athenæum, viii. 342. The lines of Antiphanes ap. Athenæ. iv. 1346, seem to apply to Aristotle, notwithstanding Meineke's remarks, p. 59.

[a] Diog. L. v. 1, 13; Aristokles ap. Euseb. Pr. Ev. xv. 2.

[b] Diog. L. v. 11. Ἔσται μεν εὖ· ἐὰν δέ τι συμβαίνῃ, τάδε διέθετο Ἀριστοτέλης· ἐπίτροπον μὲν εἶναι πάντων καὶ διὰ παντὸς Ἀντίπατρον, &c. The testament of Aristotle was known to Hermippus (Athenæus, xiii. p. 589) about a century later than Aristotle, and the most ancient known authority respecting the facts of his life. Stahr (Aristotelia, vol. i. 159) and Brandis (Arist. p. 62) suppose that what Diogenes gives is only an extract from the will; since nothing is said about the library, and Aristotle would not omit to direct what should be done with a library which he so much valued. But to this I reply, that there was no necessity for his making any provision about the library; he had left it at Athens along with his school, in the care of Theophrastus. He wished it to remain there, and probably considered it as an appendage to the school; and it naturally would remain there, if he said nothing about it in his testament. We must remember (as I have already intimated) that when Aristotle left Athens, he only contemplated being absent for a time; and intended to come back and resume his school, when Macedonian supremacy should be re-established.

[c] Pausanias (vi. 4, 5) describes a statue of Aristotle which he saw at Olympia: the fact by which Aristotle was best known both to him and to the guides, seems to have been the friendship first of Alexander, next of Antipater.

[d] Diog. L. v. 12. ἕως δ' ἂν Νικάνωρ καταλάβῃ, ἐπιμελεῖσθαι Ἀριστομένην, Τίμαρχον, Ἵππαρχον, Διοτέλην, Θεόφραστον, ἐὰν βούληται καὶ ἐνδέχηται αὐτῷ, τῶν τε παιδίων καὶ Ἑρπυλλίδος καὶ τῶν καταλελειμμένων. The four persons here named were probably present at Chalkis, so that Aristotle could count upon them; but at the time when this will was made, Theophrastus

Pythias, when she attains suitable age, is to become the of Nikanor, who will take the best care both of her an Nikomachus, being in the joint relation of father and bro to them.[a] If Pythias shall die, either before the marriag after it, but without leaving offspring, Nikanor shall have discretion to make such arrangements as may be honou both for himself and for the testator respecting Nikoma and the estate generally. In case of the death of Nikanor self, either before the marriage or without offspring, any d tions given by him shall be observed; but Theophrastus be entitled, if he chooses, to become the husband of Pyt and if Theophrastus does not choose, then the executors a with Antipater shall determine what they think best both fo and for Nikomachus.[b] The will then proceeds as follov "The executors (here Antipater is not called in to co-ope with Nikanor, in faithful memory of me and of the steady tion of Herpyllis towards me, shall take good care of h every way, but especially if she desires to be married, in g her away to one not unworthy of me. They shall assi her, besides what she has already received, a talent of s and three female slaves chosen by herself, out of the pro together with the young girl and the Pyrrhæan slave attached to her person. If she prefers to reside at Ch she may occupy the lodging near the garden; if at Sta she may live at my paternal house. Whichever of the tw may prefer, the executors shall provide it with all such a of furniture as they deem sufficient for her comfort and digr

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was at Athens, conducting the Aristotelian school; and in the critical condition of Grecian politics, there was room for doubt how far he could securely or prudently act in this matter.

The words of Diogenes—ἕως δ' ἂν Νικάνωρ καταλάβῃ—are rendered in the improved translation of the edition by Firmin Didot, "*quoad vero Nicanor adolescat*," &c. I cannot think this a correct understanding, either of the words or of the fact. Nikanor was not a minor under age, but an officer on active service. The translation given by Ménage appears to me more true—"*tantisper dum redux sit Nicanor*:" (ad. D. L. v. 12.)

[a] Diog. L. v. 12. ὡς καὶ πατὴρ ὢν καὶ ἀδελφός.

[b] Diog. L. v. 13. In following the phraseology of this testament, we remark that when Aristotle makes allusion to these inauspicious possibilities—the death of Nikanor or of Pythias, he annexes to them a deprecatory phrase: ἐὰ παιδὶ συμβῇ τι—ὃ μὴ γένοιτο οὐκ &c.

[c] Diog. L. v. 14. καὶ ἐὰν Χαλκίδι βούληται οἰκεῖν, τὸν ξεν πρὸς τῷ κήπῳ· ἐὰν δὲ ἐν Σταγεί πατρῴαν οἰκίαν. The "lodging garden" may probably have b residence occupied by Aristotle during his temporary residence at The mention of his paternal hous he still possessed at Stageira, imply that Philip, when he c that town, respected the house which had belonged to his physician.

We find in the will of Theo (Diog. L. v. 52) mention ma property (χωρίον) at Stageira b to Theophrastus, which he beq Kallinus. Probably this is t property which had once bel Aristotle; for I do not see

Aristotle proceeds to direct that Nikanor shall make comfortable provision for several persons mentioned by name, male and female, most of them slaves, but one (Myrmex), seemingly, a free boarder or pupil, whose property he had undertaken to manage. Two or three of these slaves are ordered to be liberated, and to receive presents, as soon as his daughter Pythias shall be married. He strictly enjoins that not one of the youthful slaves who attended him shall be sold. They are to be brought up and kept in employment; when of mature age, they are to be liberated according as they shew themselves worthy.[a]

Aristotle had in his lifetime ordered, from a sculptor named Gryllion, busts of Nikanor and of the mother of Nikanor; he intended farther to order from the same sculptor a bust of Proxenus, Nikanor's father. Nikanor is instructed by the will to complete these orders, and to dedicate the busts properly when brought in. A bust of the mother of Aristotle is to be dedicated to Demeter at Nemea, or in any other place which Nikanor may prefer; another bust of Arimnêstus (brother of Aristotle) is to be dedicated as a memento of the same, since he has died childless.[b]

During some past danger of Nikanor (we do not know what) Aristotle had made a vow of four marble animal figures, in case the danger were averted, to Zeus the Preserver and Athênê the Preserver. Nikanor is directed to fulfil this vow and to dedicate the figures in Stageira.[c]

Lastly, wherever Aristotle is buried, the bones of his deceased wife Pythias are to be collected and brought to the same spot, as she had commanded during her lifetime.[d]

This testament is interesting, as it illustrates the personal circumstances and sentiments of the philosopher, evincing an affectionate forethought and solicitude for those who were in domestic relations with him. As far as we can judge, the establishment and property which he left must have been an ample one.[e] How the provisions of the will were executed,

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Theophrastus (who was a native of Eresus in Lesbos) could have become possessed of property at Stageira.

[a] Diog. L. v. 15. *μὴ πωλεῖν δὲ τῶν παίδων μηδένα τῶν ἐμὲ θεραπευόντων, ἀλλὰ χρῆσθαι αὐτοῖς· ὅταν δ' ἐν ἡλικίᾳ γένωνται, ἐλευθέρους ἀφεῖναι κατ' ἀξίαν.*

[b] Diog. L. v. 15.

[c] Diog. L. v. 16. *ἀναθεῖναι δὲ καὶ Νικάνορα σωθέντα, ἣν εὐχὴν ὑπὲρ αὐτοῦ ηὐξάμην, ζῷα λίθινα τετραπήχη Διὶ Σώτηρι καὶ Ἀθήνᾳ Σωτείρᾳ ἐν Σταγείροις.*

Here is a vow, made by Aristotle to the gods under some unknown previous emergency, which he orders his executor to fulfil. I presume that the last words of direction given by Sokrates before his death to Kriton were of the same nature: "We owe a cock to Æsculapius: pay the debt, and do not fail." (See my preceding work, Plato and the other Companions of Sokrates, vol. ii. ch. 23, p. 195.)

[d] Diog. L. v. 16.

[e] The elder Pliny (H. N. xxxv. 12, 46; compare also Diogen. L. v. 1, 16) mentions that in the sale of Aristotle's

or what became of most persons named in it, we do not k
except that Pythias the daughter of Aristotle was married
times: first, to Nikanor (according to the will); secondl
Proklês, descendant of Demaratus (the king of Sparta forr
banished to Asia) by whom she had two sons, Proklês
Demaratus, afterwards pupils in the school of Theophra
thirdly, to a physician named Metrodôrus, by whom she
a son named Aristotle.[a]

There existed in antiquity several works, partly by cor
poraries like the Megaric Eubulides, partly by subse
Platonists, in which Aristotle was reproached with ingrat
to Plato,[b] servility to the Macedonian power, love of c
display and indulgences, &c. What proportion of truth
lie at the bottom of these charges we do not know enou
determine confidently; but we know that he had many ene
philosophical as well as political;[c] and controversy on
grounds (then as now) was rarely kept free from personal sl
and invective.

The accusation of ingratitude or unbecoming behavio
Plato is no way proved by any evidence now remainin
seems to have been suggested to the Platonists mainly, i
wholly, by the direct rivalry of Aristotle in setting up a s
philosophical school at Athens, alongside of the Academy
his independent, self-working, philosophical speculation;
by the often-repeated opposition which he made to some c
doctrines of Plato, especially to the so-called Platonic I

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effects by his heirs there were included seventy dishes or pans (*patinas*, earthenware). Pliny considered this as a mark of luxurious living; since (according to Fenestella) "tripatinium appellabatur summa cœnarum lautitia."

[a] Sextus Empiric. adv. Mathematicos, i. p. 271 F. sect. 258. About the banishment, or rather voluntary exile, of Demaratus to Asia, in the reign of Darius I. king of Persia, see Herodot. vi. 70. Some towns and lands were assigned to him in Æolis, where Xenophon found his descendant Prokles settled, after the conclusion of the Cyreian expedition (Xen. Anab. vii. 8, 17).

Respecting this younger Aristotle—son of Metrodorus and grandson of the great philosopher—mention is made in the testament of Theophrastus, and directions are given for promoting his improvement in philosophy (Diog. La. v. 53). Nikomachus was brought up chiefly by Theophrastus, but perished young in battle (Aristokles ap. Euseb. Præp. Ev. xv. 2).

[b] Euseb. Præp. Ev. xv. 2; Di
ii. 109.

[c] The remarkable passage o
mistius (Orat. xxiii. p. 346) atte
number and vehemence of these
nents. *Κηφισοδώρους τε καὶ Εὐβ
καὶ Τιμαίους καὶ Δικαιάρχους, καὶ
δλον τῶν ἐπιθεμένων Ἀριστοτέλει
γειρίτῃ, πότ' ἂν καταλέξαιμι εὐπε
καὶ λόγοι ἐξικνοῦνται εἰς τόνδε τὸν
διατηροῦντες τὴν ἀπέχθειαν καὶ φιλο*

[d] This is what lies at the bo
the charges advanced by Eu
probably derived from the Pla
*καὶ Εὐβουλίδης προδήλως ἐν τῷ κα
βιβλίῳ ψεύδεται, φάσκων, τελευτῶν
τωνι μὴ παραγενέσφαι, τά τε βίβλ
διαφθεῖραι* (Aristokles ap. Euseb.
Ev. xv. 2). There can be no
basis for this last charge—destro
corrupting the books of Plato—
that Aristotle had sharply c
them, and was supposed to ha
stated or unfairly discredited them
The frequently recurring pro

Such opposition was indeed expressed, as far as we can judge, in terms of respectful courtesy, and sometimes even of affectionate regret; examples of which we shall have to notice in going through the Aristotelian writings. Yet some Platonists seem to have thought that direct attack on the master's doctrines was undutiful and ungrateful in the pupil, however unexceptionable the language might be. They also thought, probably, that the critic misrepresented what he sought to refute. Whether Aristotle really believed that he had superior claims to be made Scholarch of the Platonic school at the death of Plato in 347 B.C., or at the death of Speusippus in 339 B.C., is a point which we can neither affirm nor deny. But we can easily understand that the act of setting up a new philosophical school at Athens, though perfectly fair and admissible on his part, was a hostile competition sure both to damage and offend the pre-established school, and likely enough to be resented with unbecoming asperity. Ingratitude towards the great common master Plato, with arrogant claims of superiority over fellow-pupils, were the allegations which this resentment would suggest, and which many Platonists in the Academy would not scruple to advance against their macedonizing rival at the Lykeium.

Such allegations moreover would find easy credence from other men of letters, whose enmity Aristotle had incurred, and to a certain extent even provoked—Isokrates and his numerous disciples.

This celebrated rhetor was an elderly man at the zenith of his glory and influence, during those earlier years which Aristotle passed at Athens before the decease of Plato. The Isokratean school was then the first in Greece, frequented by the most promising pupils from cities near and far, perhaps even by Aristotle himself. The political views and handling, as well as the rhetorical style of which the master set the example, found many imitators. Illustrious statesmen, speakers, and writers traced their improvement to this teaching. So many of the pupils, indeed, acquired celebrity—among them Theodektês, Theopompus, Ephorus, Naukrates, Philiskus, Kephisodôrus, and others—that Hermippus[a] thought it worth his while to draw up a catalogue of them: many must have been persons of opulent family, highly valuing the benefit received from Iso-

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Aristotle against the Platonic doctrine of Ideas may be read now in the Analytica, Topica, Metaphysica, and Ethica Nikomachea, but was introduced even in the lost Dialogues. See Plutarch adv. Kolôten, c. 14; and Proklus adv. Joann. Philoponum ap. Bernays, Die Dialoge des Aristoteles, not. 22, p. 151.

[a] Athenæus x. p. 451; Dionys. Hal., De Isæo Judic. pp. 588, 625. οὐδὲ γὰρ ὁ τοὺς Ἰσοκράτους μαθητὰς ἀναγράψας Ἕρμιππος, ἀκριβὴς ἐν τοῖς ἄλλοις γενόμενος,

krates, since each of them was required to pay to him a
of 1000 drachmæ.[a] During the first sojourn of Aristotl
Athens (362–347 B.C.), while he was still attached to
receiving instruction from Plato, he appears to have dev
himself more to rhetoric than to philosophy, and even to
given public lessons or lectures on rhetoric. He thus ent
into rivalry with Isokrates, for whom, as a teacher and au
he contracted dislike or contempt.

The composition of Isokrates was extremely elegant:
structure of sentences was elaborate even to excess, his arra
ment of words rhythmical, his phrases nicely balanced in
thetical equipoise, like those of his master Gorgias; the re
of his discourses proved highly captivating to the ear.[b] M
over, he had composed a book of rhetorical precepts known
esteemed by Cicero and Quintilian. Besides such tech
excellence, Isokrates strove to attain, and to a certain e
actually attained, a higher order of merit. He familia
his pupils with thoughts and arguments of lofty bearing
comprehensive interest; not assisting them to gain victory e

ὑπὲρ τοῦδε τοῦ ῥήτορος οὐδὲν εἴρηκεν, ἔξω δυοῖν τούτοιν, ὅτι διήκουσε μὲν Ἰσοκράτους, καθηγήσατο δὲ Δημοσθένους, συνεγένετο δὲ τοῖς ἀρίστοις τῶν φιλοσόφων. See Hermippi Fragmenta ed. Lozinski, Bonn, 1832, pp. 42-43.

Cicero, De Oratore, ii. 22, 94. "Ecce tibi exortus est Isocrates, magister istorum omnium, cujus è ludo, tanquam ex equo Trojano, meri principes exierunt: sed eorum partim in pompâ, partim in acie, illustres esse voluerunt. Atqui et illi—Theopompi, Ephori, Philiski, Naucratæ, multique alii—ingeniis differunt," &c. Compare also Cicero, Brutus, 8, 32; and Dionys. Hal., De Isocrate Judicium, p. 536. ἐπιφανέστατος δὲ γενόμενος τῶν κατὰ τὸν αὐτὸν ἀκμασάντων χρόνον, καὶ τοὺς κρατίστους τῶν ἐν Ἀθήνῃσί τε καὶ ἐν τῇ ἄλλῃ Ἑλλάδι νέων παιδεύσας· ὧν οἱ μὲν ἐν τοῖς δικανικοῖς ἐγένοντο ἄριστοι λόγοις, οἱ δ' ἐν τῷ πολιτεύεσθαι καὶ τὰ κοινὰ πράττειν διήνεγκαν, καὶ ἄλλοι δὲ τὰς κοινὰς τῶν Ἑλλήνων τε καὶ βαρβάρων πράξεις ἀνέγραψαν, &c.

[a] See Demosthenes, adv. Lakritum, pp. 928, 938. Lakritus was a citizen of Phasêlis—μέγα πρᾶγμα, Ἰσοκράτους μαθητής. To have gone through a course of teaching from Isokrates, was evidently considered as a distinction of some importance.

[b] Dionysius, while admiring Isocrates, complains of him, and complains still more of his imitators, as son monotonous, wanting in flexibili variety (De Compos. Verborum, p Yet he pronounces Isokrates and to be more natural, shewing less o and art than Isæus and Demosthen Isæo Judicium, p. 592). Isokrat ὄγκον τῆς ποιητικῆς κατασκευῆς ἐπὶ ἤγαγε φιλοσόφους, ζηλώσας τοὺ Γοργίαν. (Dionys. Hal. ad Pon de Platone, p. 764; also De Isæo cium, p. 592; besides the special cl p. 534, seq., which he has devo Isokrates.)

Cicero, De Oratore, iii. 44, 173: ' princeps Isocrates instituisse fert inconditam antiquorum dicendi c tudinem delectationis atque c causâ, quemadmodum scribit dis ejus Naucrates, numeris adstrin Compare Cicero, Orator. 52, 175, 1'

The reference to Naucrates works have not been preserved, Dionysius commends his Λόγος Ἐπι Ars. Rhet. p. 259) is interesting shews what was said of Isokrates own disciples. Cicero says of the do in his own dialogue De Oratore ad Famil. i. 9, 23), "Abhorrent munibus præceptis, et omnem antiq et *Aristoteleam et Isocrateam*, ra oratoriam complectuntur." Abo Τέχνη of Isokrates, see Spengel, Συ Τεχνῶν (Munich), pp. 155-170.

in any real issue tried before the Dikasts, or in any express motion about to be voted on by the public assembly, but predisposing their minds to prize above all things the great Panhellenic aggregate—its independence in regard to external force, and internal harmony among its constituent cities, with a reasonable recognition of presidential authority, equitably divided between Athens and Sparta, and exercised with moderation by both. He inculcated sober habits and deference to legal authority on the part of the democrats of Athens; he impressed upon princes, like Philip and Nikokles, the importance of just and mild bearing towards subjects.[a] Such is the general strain of the discourses which we now possess from Isokrates; though he appears to have adopted it only in middle life, having begun at first in the more usual track of the logographer—composing speeches to be delivered before the Dikastery by actual plaintiffs or defendants,[b] and acquiring thus both reputation and profit. His reputation as a teacher was not only maintained but even increased when he altered his style; and he made himself peculiarly attractive to foreign pupils who desired to acquire a command of graceful expressions, without special reference to the Athenian Assembly and Dikastery. But his new style being midway between Demosthenes and Plato—between the practical advocate and politician on one side, and the generalizing or speculative philosopher on the other—he incurred as a semi-philosopher, professing to have discovered the *juste milieu*, more or less of disparagement from both extremes;[c] and

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[a] Dionysius Hal. dwells emphatically on the lofty morality inculcated in the discourses of Isokrates, and recommends them as most improving study to all politicians (De Isocrate Judic. pp. 536, 544, 555, seq.)—more improving than the writers purely theoretical, among whom he probably numbered Plato and Aristotle.

[b] Dionysius Hal. De Isocrate Judicium, pp. 576, 577, Reiske: *δέσμας πάνυ πολλὰς δικανικῶν λόγων Ἰσοκρατείων περιφέρεσθαί φησιν ὑπὸ τῶν βιβλιοπωλῶν Ἀριστοτέλης.* It appears that Aphareus, the adopted son of Isokrates, denied that Isokrates had ever written any judicial orations; while Kephisodôrus, the disciple of Isokrates, in his reply to Aristotle's accusations, admitted that Isokrates had composed a few, but only a few. Dionysius accepts the allegation of Kephisodôrus, and discredits that of Aristotle: I, for my part, believe the allegation of Aristotle, upon a matter of fact which he had the means of knowing. Cicero also affirms (Brutus, xii. 46-48), on the authority of Aristotle, that Isokrates distinguished himself at first as a composer of speeches intended to be delivered by actual pleaders in the Dikastery or Ekklesia; and that he afterwards altered his style. And this is what Aristotle says (respecting Isokrates) in Rhetoric. i. 9, 1368, a. 20, *ὅπερ Ἰσοκράτης ἐποίει διὰ τὴν συνήθειαν τοῦ δικολογεῖν*, where Bekker has altered the substantive to *τὴν ἀσυνήθειαν*; in my judgment, not wisely. I do not perceive the meaning or pertinence of *ἀσυνήθειαν* in that sentence.

[c] See Plato, Euthydemus, p. 305; also 'Plato and the Other Companions of Sokrates,' vol. i. ch. xix. pp. 557-563.

It is exactly this *juste milieu* which Dionysius Hal. extols as the most worthy of being followed, as being *ἡ ἀληθινὴ φιλοσοφία.* De Isocrate Jud. pp. 543, 558.

Aristotle, while yet a young man in the Platonic school, r
an ardent controversy against his works, on the ground
of composition and teaching. Though the whole contro
is now lost, there is good ground for believing that Ari
must have displayed no small acrimony. He appears to
impugned the Isokratean discourses, partly as containing
proper dogmas, partly as specimens of mere unimpre
elegance, intended for show, pomp, and immediate admir
from the hearer—*ad implendas aures*—but destitute bo
comprehensive theory and of applicability to any useful pur
Kephisodôrus, an intimate friend and pupil of Isokrates, def
him in an express reply, attacking both Aristotle the sc
and Plato the master. This reply was in four books,

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[a] Cicero, De Oratore, iii. 35, 141. "Itaque ipse Aristoteles quum florere Isocratem nobilitate discipulorum videret, quod ipse suas disputationes a causis forensibus et civilibus ad inanem sermonis elegantiam transtulisset, mutavit repente totam formam prope disciplinæ suæ, versumque quendam Philoctetæ paulo secus dixit. Ille enim 'turpe sibi ait esse tacere, quum barbaros'—hic autem, 'quum Isocratem'—'pateretur dicere.'" See Quintillian, Inst. Or. iv. 2, 196; and Cicero, Orator. 19, 62: "Aristoteles Isocratem ipsum lacessivit." Also, ib. 51, 172: "Omitto Isocratem discipulosque ejus Ephorum et Naucratem; quanquam orationis faciendæ et ornandæ auctores locupletissimi summi ipsi oratores esse debebant. Sed quis omnium doctior, quis acutior, quis in rebus vel inveniendis vel judicandis acrior Aristotele fuit? *Quis porro Isocrati adversatus est infensius?*" That Aristotle was the first to assail Isokrates, and that Kephisodôrus wrote only in reply, is expressly stated by Numenius, ap. Euseb. Pr. Ev. xiv. 6: ὁ Κηφισόδωρος, ἐπειδὴ ὑπ' Ἀριστοτέλους βαλλόμενον ἑαυτῷ τὸν διδάσκαλον Ἰσοκράτην ἑώρα, &c. Quintilian also says, Inst. Or. iii. 1, p. 126: "Nam et Isocratis præstantissimi discipuli fuerunt in omni studiorum genere; eoque jam seniore (octavum enim et nonagesimum implevit annum) pomeridianis scholis Aristoteles præcipere artem oratoriam cœpit; noto quidem illo (ut traditur) versu ex Philoctetâ *frequenter usus*: Αἰσχρὸν σιωπᾶν μέν, καὶ Ἰσοκράτην ἐᾶν λέγειν."

Diogenes La. (v. 3) maintains that Aristotle turned the parody not against *Isokrates*, but against *Xenokrates*: Αἰσχρὸν σιωπᾶν, Ξενοκράτην δ' ἐᾶν λέγειν. But the authority of Cicero and Quintilian is decidedly preferable. When we re
that the parody was employed by a
man, as yet little known, against a
advanced in age, and greatly freq
as well as admired by pupils,
appear sufficiently offensive. Mo
it does not seem at all pertinent;
defects of Isokrates, however gre
may have been, were not those of a
with βάρβαροι, but the direct
Dionysius must have been forcibly
with the bitter *animus* displayed
stotle against Isokrates, when he n
a reason for rejecting the explicit a
of Aristotle as to a matter of fact:
Ἀριστοτέλει πείθομαι ῥυπαίνει
ἄνδρα βουλομένῳ (De Isocr.
577).

Mr. Cope, in his Introduction
stotle's Rhetoric (p. 39, seq.), gives
representation of the probable r
between Aristotle and Isokrates;
I do not concur in the unfav
opinion which he expresses abo
malignant influence exercised by Is
upon education in general" (p. 40
Cope at the same time remark
"Aristotle in the Rhetorica d
greater number of illustrations
cellences of style from Isokrat
from any other author" (p. 41);
adds, very truly, that the absence
evidence of ill feeling towards Is
in Aristotle's later work, and the e
of such ill feeling as an actual fa
earlier period, are perfectly recon
in themselves (p. 42).

That the Rhetorica of Aristotl
we now possess is a work of his la
certainly published, perhaps co
during his second residence at A
hold with Mr. Cope and other ant
critics.

Dionysius characterizes it by an epithet of the highest praise.[a]

These polemics of Aristotle were begun during his first residence at Athens, prior to 347 B.C., the year of Plato's decease, and at the time when he was still accounted a member of the Platonic school. They exemplify the rivalry between that school and the Isokratean, which were then the two competing places of education at Athens: and we learn that Aristotle, at that time only a half-fledged Platonist, opened on his own account not a new philosophical school in competition with Plato, as some state, but a new rhetorical school in opposition to Isokrates.[b] But the case was different at the latter epoch, 335 B.C., when Aristotle came to reside at Athens for the second time. Isokrates was then dead, leaving no successor, so that his rhetorical school expired with him. Aristotle preferred philosophy to rhetoric: he was no longer trammelled by the living presence and authority of Plato. The Platonic school at the Academy stood at that time alone, under Xenokrates, who, though an earnest and dignified philosopher, was deficient in grace and in persuasiveness, and had been criticized for this defect even by Plato himself. Aristotle possessed those gifts in large measure, as we know from the testimony of Antipater. By these circumstances, coupled with his own established reputation and well-grounded self-esteem, he was encouraged to commence a new philosophical school; a school, in which philosophy formed the express subject of the morning lecture, while rhetoric was included as one among the subjects of more varied and popular instruction given in the afternoon.[c] During the twelve ensuing years, Aristotle's rivalry was mainly against

[a] Athenæus, ii. 60, iii. 122; Euseb. Pr. E. xiv. 6; Dionys. H. de Isocrate Judic. p. 577: *ἱκανὸν ἡγησάμενος εἶναι τῆς ἀληθείας βεβαιωτὴν τὸν Ἀθηναῖον Κηφισόδωρον, ὃς καὶ συνεβίωσεν Ἰσοκράτει, καὶ γνησιώτατος ἀκουστὴς ἐγένετο, καὶ τὴν ἀπολογίαν τὴν πάνυ θαυμαστὴν ἐν ταῖς πρὸς Ἀριστοτέλη ἀντιγραφαῖς ἐποιήσατο*, &c. Kephisodôrus, in this defence, contended that you might pick out, even from the very best poets and sophists, *ἓν ἢ δύο πονηρῶς εἰρημένα.* This implies that Aristotle, in attacking Isokrates, had cited various extracts which he denounced as exceptionable.

[b] That Aristotle had a school at Athens before the death of Plato we may see by what Strabo (xiii. 610) says about Hermeias: *γενόμενος δ' Ἀθήνησιν ἠκροάσατο καὶ Πλάτωνος καὶ Ἀριστοτέλους.* Compare Cicero, Orator. 46; also Michelet, Essai sur la Métaphys. d'Aristote, p. 227. The statement, that Aristotle during Plato's lifetime tried to set up a rival school against him, is repeated by all the biographers, who do not however believe it to be true, though they cite Aristoxenus as its warrant. I conceive that they have mistaken what Aristoxenus said; and that they have confounded the school which Aristotle first set up as a rhetor, against Isokrates, with that which he afterwards set up as a philosopher, against Xenokrates.

[c] Aulus Gellius, N. A. xx. 5. Quintilian (see note on p. 35) puts the rhetorical "pomeridianæ scholæ" within the lifetime of Isokrates; but Aristotle did not then lecture on philosophy in the morning.

the Platonists or Xenokrateans at the Academy; embit on both sides by acrimonious feelings, which these expr by complaining of his ingratitude and unfairness toward common master, Plato.

There were thus, at Athens, three distinct parties ins with unfriendly sentiment towards Aristotle: first, the Is teans; afterwards, the Platonists; along with both, the Macedonian politicians. Hence we can account for what mistius entitles the "army of assailants" (στράτον ὅλον) fastened upon him, for the unfavourable colouring with v his domestic circumstances are presented, and for the nece under which he lay of Macedonian protection; so that such protection was nullified, giving place to a reactic fervour, his residence at Athens became both disagreeable insecure.

CHAPTER II.

ARISTOTELIAN CANON.

IN the fourth and fifth chapters of my work on 'Plato and the Other Companions of Sokrates,' I investigated the question of the Platonic Canon, and attempted to determine, upon the best grounds open to us, the question, What are the real works of Plato? I now propose to discuss the like question respecting Aristotle.

But the premisses for such a discussion are much less simple in regard to Aristotle than in regard to Plato. As far as the testimony of antiquity goes, we learn that the Canon of Thrasyllus, dating at least from the time of the Byzantine Aristophanes, and probably from an earlier time, was believed by all readers to contain the authentic works of Plato and none others; an assemblage of dialogues, some unfinished, but each undivided and unbroken. The only exception to unanimity in regard to the Platonic Canon, applies to ten dialogues, which were received by some (we do not know by how many, or by whom) as Platonic, but which, as Diogenes informs us, were rejected by agreement of the most known and competent critics. This is as near to unanimity as can be expected. The doubts, now so multiplied, respecting the authenticity of various dialogues included in the Canon of Thrasyllus, have all originated with modern scholars since the beginning of the present century, or at least since the earlier compositions of Wyttenbach. It was my task to appreciate the value of those doubts; and, in declining to be guided by them, I was at least able to consider myself as adhering to the views of all known ancient critics.

Very different is the case when we attempt to frame an Aristotelian Canon, comprising all the works of Aristotle and none others. We find the problem far more complicated, and the matters of evidence at once more defective, more uncertain, and more contradictory.

The different works now remaining, and published in the Berlin edition of Aristotle, are forty-six in number. But, among these, several were disallowed or suspected even by some ancient

critics, while modern critics have extended the like judgn yet farther. Of several others again, the component sect (either the *books*, in our present phraseology, or portions thei appear to have existed once as detached rolls, to have bec disjointed or even to have parted company, and to have l re-arranged or put together into aggregates, according to judgment of critics and librarians. Examples of such doul aggregates, or doubtful arrangements, will appear when review the separate Aristotelian compositions (the Metaphys Politica, &c.). It is, however, by one or more of these fc six titles that Aristotle is known to modern students, and known to mediæval students.

But the case was very different with ancient *literati*, sucl Eratosthenes, Polybius, Cicero, Strabo, Plutarch, &c., dow the time of Alexander of Aphrodisias, Athenæus, Diog Laertius, &c., towards the close of the second century after Christian era. It is certain that these ancients perused n works of Aristotle, or generally recognized as his, which w not now possess; and among those which we do now pos there are many which it is not certain that they perused even knew.

Diogenes Laertius, after affirming generally that Aristotle composed a prodigious number of books (*πάμπλειστα βίβ* proceeds to say, that, in consequence of the excellence of author in every variety of composition, he thinks it prope indicate them briefly.[a] He then enumerates one hundred forty-six distinct titles of works, with the number of book sections contained in each work. The subjects are exceedi heterogeneous, and the form of composition likewise very ferent; those which come first in the list being Dialogues,[b] v those which come last are Epistles, Hexameters, and Ele At the close of the list we read: "All of them together are 445 lines, and this is the number of books (works) composed Aristotle."[c] A little farther on, Diogenes adds, as an evid

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[a] Diog. La. v. 21. *Συνέγραψε δὲ πάμπλειστα βίβλια, ἅπερ ἀκόλουθον ἡγησάμην ὑπογράψαι, διὰ τὴν περὶ πάντας λόγους τἀνδρὸς ἀρετήν.*

[b] Bernays has pointed out (in his valuable treatise, Die Dialoge des Aristoteles, p. 133) that the first in order, nineteen in number, among the titles enumerated by Diogenes, designate Dialogues. The longest of them, those which included more than one book or section, are enumerated first of all. Some of the dialogues appear to have coincided, either in title or in subject, with some of the Platonic:—*Περὶ ιοσύνης*, in four books (comparable Plato's Republic); *Πολιτικοῦ*, in books; *Σοφιστὴς*, *Μενέξενος*, *Συμπ* each in one book; all similar in t works of Plato; perhaps also an *Περὶ ῥητορικῆς ἢ Γρύλλος*, the analo Plato's Gorgias.

[c] Diog. La. v. 27. *γίνονται αἱ μυριάδες στίχων τέτταρες καὶ τετταρ πρὸς τοῖς πεντακισχιλίοις καὶ διαι ἑβδομήκοντα. Καὶ τοσαῦτα μὲν πεπραγμάτευται βίβλια.*

of the extraordinary diligence and inventive force of Aristotle, that the books (works) enumerated in the preceding list were nearly four hundred in number, and that these were not contested by any one; but that there were many other writings, and *dicta* besides, ascribed to Aristotle—ascribed (we must understand him to mean) erroneously, or at least so as to leave much doubt.[a]

We have another distinct enumeration of the titles of Aristotle's works, prepared by an anonymous biographer cited in the notes of Ménage to Diogenes Laertius.[b] This anonymous list contains only one hundred and twenty-seven titles, being nineteen less than the list in Diogenes. The greater number of titles are the same in both; but Anonymus has eight titles which are not found in Diogenes, while Diogenes has twenty-seven titles which are not given by Anonymus. There are therefore thirty-five titles which rest on the evidence of one alone out of the two lists. Anonymus does not specify any total number of lines; nevertheless he gives the total number of *books* composed by Aristotle as being nearly four hundred—the same as Diogenes. This total number cannot be elicited out of the items enumerated by Anonymus; but it may be made to coincide pretty nearly with the items in Diogenes,[c] provided we understand by *books*, sections or subdivisions of one and the same title or work.

The two catalogues just mentioned, agreeing as they do in the total number of books and in the greater part of the items, may probably be considered not as original and copy, but as

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[a] Diog. La. v. 34. Heitz (Die Verlorenen Schriften des Aristoteles, p. 17) notices, as a fact invalidating the trustworthiness of the catalogue given by Diogenes, that Diogenes, in other places, alludes to Aristotelian compositions which are not mentioned in his own catalogue. For example, though Diogenes, in the catalogue, allows only five books to the Ethica, yet he himself alludes (v. 21) to the seventh book of the Ethica. But this example can hardly be relied upon, because *ἐν τῷ ἑβδόμῳ τῶν ἠθικῶν* is only a conjecture of H. Stephens or Ménage. The only case which Heitz really finds to sustain his remark, is the passage of the Procemium (i. 8), where Diogenes cites Aristotle *ἐν τῷ Μαγικῷ*, that work not being named in his catalogue. But there is another case (not noticed by Heitz) which appears to me still stronger. Diogenes cites at length the Hymn or Pæan composed by Aristotle in honour of Hermeias. Now there is no general head of his catalogue under which this hymn could fall. Here Anonymus (to be presently mentioned) has a superiority over Diogenes: for he introduces, towards the close of his catalogue, one general head—*ἐγκώμια ἢ ὕμνους*, which is not to be found in Diogenes.

[b] Ménage ad Diog. tom. ii. p. 201. See the very instructive treatise of Professor Heitz, Die Verlorenen Schriften des Aristoteles, p. 15 (Leipzig, 1865).

[c] Heitz, Die Verl. Schrift. des Aristot. p. 51. Such coincidence assumes that we reckon the Πολιτεῖαι and the Epistles each as one book.

I think it unnecessary to transcribe these catalogues of the titles of works mostly lost. The reader will find them clearly printed in the learned work of Val. Rose, Aristoteles Pseudepigraphus, pp. 12-20.

inaccurate transcripts from the same original authority. ˈ neither of the two transcribers tells us what that origi authority was. We may, however, be certain that each of th considered his catalogue to comprehend all that Aristotle co be affirmed on good authority to have published; Dioge plainly signifies thus much, when he gives not only the to number of books, but the total number of lines. Such being case, we expect to find in it, of course, the titles of the forty works composing the Berlin edition of Aristotle now before But this expectation is disappointed. The far greater num of the Aristotelian works which we now peruse are not speci either in the list of Diogenes, or in that of Anonymus.[a] Mo over, the lists also fail to specify the titles of various wo which are not now extant, but which we know from Arist himself that he really composed.[b]

The last-mentioned fact is in itself sufficiently strange difficult to explain, and our difficulty becomes aggravated w we combine it with another fact hardly less surprising. B Cicero, and other writers of the century subsequent to l (Dionysius Hal., Quintilian, &c.), make reference to Aristo and especially to his dialogues, of which none have been served, though the titles of several are given in the two ca logues mentioned above. These writers bestow much encomi on the style of Aristotle; but what is remarkable is, that t ascribe to it attributes which even his warmest admirers hardly find in the Aristotelian works now remaining. Ci extols the sweetness, the abundance, the variety, the rhetor force which he discovered in Aristotle's writings: he even g so far as to employ the phrase "*flumen orationis aureum*' golden stream of speech), in characterizing the Aristote style.[c] Such predicates may have been correct, indeed v doubtless correct, in regard to the dialogues, and perhaps other lost works of Aristotle; but they describe exactly

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[a] Heitz, Verl. Schr. Aristot. p. 18, remarks that "In diesem Verzeichnisse (that of Diogenes) die bei weitem grösste Zahl derjenigen Schriften fehlt, welche wir heute noch besitzen, und die wir als den eigentlichen Kern der aristotelischen Lehre enthaltend zu betrachten gewohnt sind." Cf. p. 32. Brandis expresses himself substantially to the same effect (Aristoteles, Berlin, 1853, pp. 77, 78, 96); and Zeller also (Gesch. der Phil. 2nd ed. Aristot. Schriften, p. 43).

[b] Heitz, Verl. Schr. des Aristoteles, p. 56, seq.

[c] Cicero, Acad. Prior. ii. 38, "Quum enim tuus iste Stoicus sa syllabatim tibi ista dixerit, veniet flu orationis aureum fundens Aristo qui illum desipere dicat." Also To i. 3. "Quibus (*i.e.* those who ignorant of Aristotle) eo minus i cendum est, quod non modo rebu quæ ab illo dictæ et inventæ sunt, debuerunt, sed dicendi quoque incre quâdam quum copiâ, tum suavit Also De Oratore, i. 11, 49; Brutus 121; De Nat. Deor. ii. 37; De Invent ii. 2; De Finibus, i. 5, 14; Episto

opposite[a] of what we find in all the works preserved. With most of these (except the History of Animals) Cicero manifests no acquaintance; and some of the best modern critics declare him to have been ignorant of them.[b] Nor do other ancient authors, Plutarch, Athenæus, Diogenes Laertius, &c., give evidence of having been acquainted with the principal works of Aristotle known to us. They make reference only to works enumerated in the Catalogue of Diogenes Laertius.[c]

Here, then, we find several embarrassing facts in regard to the Aristotelian Canon. Most of the works now accepted and known as belonging to Aristotle, are neither included in the full Aristotelian Catalogue given by Diogenes, nor were they known to Cicero; who, moreover, ascribes to Aristotle attributes of style not only different, but opposite, to those which *our* Aristotle presents. Besides, more than twenty of the compositions entered in the Catalogue are dialogues, of which form *our* Aristotle affords not a single specimen: while others relate to matters of ancient exploit or personal history; collected pro-

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Atticum, ii. 1, where he speaks of the "Aristotelia pigmenta," along with the *μυροθήκιον* of Isokrates. Dionysius Hal. recommends the style of Aristotle in equal terms of admiration: *παραληπτέον δὲ καὶ Ἀριστοτέλη εἰς μίμησιν τῆς τε περὶ τὴν ἑρμηνείαν δεινότητος καὶ τῆς σαφηνείας, καὶ τοῦ ἡδέος καὶ πολυμαθοῦς* (De Veter. Script. Censurâ, p. 430, R.; De Verb. Copiâ, p. 187). Quintilian extols the "eloquendi suavitas" among Aristotle's excellences (Inst. Or. X. i. p. 510). Demetrius Phalereus (or the author who bears that title), De Eloquentiâ, s. 128, commends *αἱ Ἀριστοτέλους χάριτες*. David the Armenian, who speaks of him (having reference to the dialogue) as *Ἀφροδίτης ἐννόμου γέμων* (the correction of Bernays, Dial. des Arist. p. 137) *καὶ χαρίτων ἀνάμεστος*, probably copies the judgment of predecessors (Scholia ad Categor. p. 26, b. 36, Brandis).

Bernays (Die Dialoge des Aristoteles, pp. 3-5) points out how little justice has been done by modern critics to the literary merits, exhibited in the dialogues and other works now lost, of one whom we know only as a "dornichten und wortkargen Systematiker."

[a] This opinion is insisted on by Ravaisson, Essai sur la Métaphysique d'Aristote, pp. 210, 211.

[b] Valentine Rose, Aristoteles Pseudepigraphus, p. 23: "Cicero philosophicis certe ipsius Aristotelis libris nunquam usus est." Heitz, Die Verlor. Schrift. des Aristot. pp. 31, 158, 187: "Cicero, dessen Unbekanntschaft mit beinahe sämmtlichen heute vorhandenen Werken des Aristoteles eine unstreitige Thatsache bildet, deren Bedeutung man sich umsonst bemüht hat abzuschwächen." Madvig, Excursus VII. ad Ciceron. De Finibus, p. 855: "Non dubito profiteri, Ciceronem mihi videri dialogos Aristotelis populariter scriptos, et Rhetorica (quibus hic Topica adnumero) tum *πολιτείας* legisse; difficiliora vero, quibus omnis interior philosophia continebatur, aut omnino non attigisse, aut si aliquando attigerit, non longe progressum esse, ut ipse de subtilioribus Aristotelis sententiis aliquid habere possit explorati." The language here used by Madvig is more precise than that of the other two; for Cicero must be allowed to have known, and even to have had in his library, the Topica of Aristotle.

[c] See this point enforced by Heitz, pp. 29-31. Athenæus (xiv. 656) refers to a passage of Philochorus, in which Philochorus alludes to Aristotle, that is, as critics have hitherto supposed, to Aristot. Meteorol. iv. 3, 21. Bussemaker (in his Præfat. ad Aristot. Didot, vol. iv. p. xix.) has shewn that this supposition is unfounded, and that the passage more probably refers to one of the Problemata Inedita (iii. 43) which Bussemaker has first published in Didot's edition of Aristotle.

verbs; accounts of the actual constitution of many Helle cities; lists of the Pythian victors and of the scenic represe tations; erotic discourses; legendary narratives, embodied ir miscellaneous work called 'Peplus'—a title perhaps borrov from the *Peplus* or robe of Athênê at the Panathenaic festi embroidered with various figures by Athenian women; a sy posion or banquet-colloquy; and remarks on intoxication. these subjects are foreign in character to those which *our* A stotle treats.[a]

The difficulty of harmonizing *our* Aristotle with the Aristotl the Catalogue is thus considerable. It has been so strongly in recent years, that one of the ablest modern critics altogetl dissevers the two, and pronounces the works enumerated in Catalogue not to belong to *our* Aristotle. I allude to Valent Rose, who in his very learned and instructive volume, '*Aristot Pseudepigraphus*,' has collected and illustrated the fragme which remain of these works. He considers them all pseu Aristotelian, composed by various unknown members of the P patetic school, during the century or two immediately succe ing the death of Aristotle, and inscribed with the illustri name of the master, partly through fraud of the sellers, pa through carelessness of purchasers and librarians.[b] Emil He on the other hand, has argued more recently, that upon external evidence as it stands, a more correct conclusion to d would be (the opposite of that drawn by Rose, viz.): That works enumerated in the Catalogue are the true and genui and that those which we possess, or most of them, are not re composed by Aristotle.[c] Heitz thinks this conclusion be sustained than that of Rose, though he himself takes a diffe view, which I shall presently mention.

It will be seen from the foregoing observations how m more difficult it is to settle a genuine Canon for Aristotle t

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[a] Brandis and Zeller, moreover, remark, that among the allusions made by Aristotle in the works which we possess to other works of his own, the majority relate to other works actually extant, and very few to any of the lost works enumerated in the Catalogue (Brand. Aristoteles, pp. 97-101; Zeller, Phil. der Griech. ii. 2, p. 79, ed. 2nd). This however is not always the case: we find (*e.g.*) in Aristotle's notice of the Pythagorean tenets (Metaphys. A. p. 986, a. 12) the remark, διώρισται δὲ περὶ τούτων ἐν ἑτέροις ἡμῖν ἀκριβέστερον; where he probably means to indicate his special treatises, Περὶ τῶν Πυθαγορείων and τοὺς Πυθαγορείους, enumerated by L. v. 25, and mentioned by Alexa Porphyry, and Simplikius. See ander, Schol. ad Metaphys. p. 54 5, 560, b. 25, Br.; and the no Schwegler on Metaphys. i. 5, p. 47.

[b] Valent. Rose, Aristoteles Pseud pp. 4-10. The same opinion is de also in the earlier work of the author, De Aristotelis Librorum O et Auctoritate.

[c] Heitz, Die Verlor. Schrift. de pp. 29, 30.

for Plato. I do not assent to either of the two conclusions just indicated; but I contend that, if we applied to this question the same principles of judgment as those which modern Platonic critics often apply, when they allow or disallow dialogues of Plato, we should be obliged to embrace one or other of them, or at least something nearly approaching thereto. If a critic, after attentively studying the principal compositions now extant of *our* Aristotle, thinks himself entitled, on the faith of his acquired "*Aristotelisches Gefühl,*" to declare that no works differing materially from them (either in subject handled, or in manner of handling, or in degree of excellence), can have been composed by Aristotle—he will assuredly be forced to include in such rejection a large proportion of those indicated in the Catalogue of Diogenes. Especially he will be forced to reject the Dialogues—the very compositions by which Aristotle was best known to Cicero and his contemporaries. For the difference between them and the known compositions of Aristotle, not merely in form but in style (the style being known from the epithets applied to them by Cicero), must have been more marked and decisive than that between the Alkibiades, Hippias, Theages, Erastæ, Leges, &c.—which most Platonic critics now set aside as spurious—and the Republic, Protagoras, Gorgias, Philêbus, &c., which they treat as indisputably genuine.[a]

In discussing the Platonic Canon, I have already declared that I consider these grounds of rejection to be unsafe and misleading. Such judgment is farther confirmed, when we observe the consequences to which they would conduct in regard to the Aristotelian Canon. In fact, we must learn to admit among genuine works, both of Plato and Aristotle, great diversity in subject, in style, and in excellence.

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[a] Thus (for example) in Bernays, who has displayed great acuteness and learning in investigating the Aristotelian Canon, and in collecting what can be known respecting the lost dialogues of Aristotle, we read the following observations:—"In der That mangelt es auch nicht an den bestimmtesten Nachrichten über die vormalige Existenz einer grossen aristotelischen Schriftenreihe, die von der jetzt erhaltenen *durch die tiefste formale Verschiedenheit* getrennt war. Das Verzeichniss aristotelischer Werke führt an seiner Spitze sieben und zwanzig Bände jetzt verlorener Schriften auf, die alle in der künstlerischen Gesprächsform abgefasst waren," &c. (Bernays, Die Dialoge des Aristoteles, p. 2; compare ibid. p. 30).

If, as Bernays justly contends, we are to admit these various writings, notwithstanding "the profound difference of form," as having emanated from the same philosopher Aristotle, how are we to trust the Platonic critics when they reject about one-third of the preserved dialogues of Plato, though there is no difference of form to proceed upon, but only a difference of style, merit, and, to a certain extent, doctrine?

Zeller (Die Phil. der Griechen, ii. 2, pp. 45, 46, 2nd ed.) remarks that the dialogues composed by Aristotle are probably to be ascribed to the earlier part of his literary life, when he was still (or had recently been) Plato's scholar.

I see no ground for distrusting the Catalogue given by Dioge as being in general an enumeration of works really composed Aristotle. These works must have been lodged in some g library—probably the Alexandrine—where they were seen counted, and the titles of them enrolled by some one or n among the *literati*, with a specification of the sum total obtai on adding together the lines contained in each.[a] I do not d the probability, that, in regard to some, the librarians may h been imposed upon, and that pseudo-Aristotelian works have been admitted; but whether such was partially the fac not, the general goodness of the Catalogue seems to me ur peachable. As to the author of it, the most admissible jecture seems that of Brandis and others, recently adopted advocated by Heitz: that the Catalogue owes its origin to of the Alexandrine *literati;* probably to Hermippus of Smy a lettered man and a pupil of Kallimachus at Alexandria, tween 240–210 B.C. Diogenes does not indeed tell us from w he borrowed the Catalogue; but in his life of Aristotle, he r than once cites Hermippus, as having treated of Aristotle his biography in a work of some extent; and we know other sources that Hermippus had devoted much attentio Aristotle as well as to other philosophers. If Hermippus be author of this Catalogue, it must have been drawn up a the same time that the Byzantine Aristophanes arranged dialogues of Plato. Probably, indeed, Kallimachus the librarian, had prepared the way for both of them. We k that he had drawn up comprehensive tables, including, not the principal orators and dramatists, with an enumeratio their discourses and dramas, but also various miscellan authors, with the titles of their works. We know, farther, he noticed Demokritus and Eudoxus, and we may feel ass that, in a scheme thus large, he would not omit Plato or stotle, the two great founders of the first philosophical sch nor the specification of the works of each contained in Alexandrine library.[b] Heitz supposes that Hermippus wa

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[a] Stahr, who in the first volume of his work Aristotelia (p. 194), had expressed an opinion that the Catalogue given by Diogenes is the Catalogue "der eigenen Schriften des Stageiriten, wie sie sich in seinem Nachlasse befanden," retracts that opinion in the second volume of the same work (pp. 68-70), and declares the Catalogue to be an enumeration of the Aristotelian works in the library of Alexandria. Trendelenburg concurs in this later opinion (Prooemium ad Commen Aristot. De Animâ, p. 123).

[b] Ἕρμιππος ὁ Καλλιμάχειος ἐν τῷ περὶ Ἀριστοτέλους, is cited by Ath xv. 696; also v. 213.

Among the Tables prepared by machus, one was Παντοδάπων Συγγ των Πίναξ; and in it were incluc Πλακουντοποιϊκὰ συγγράμματα Α καὶ Ἡγησίππου, καὶ Μητροβίου, Φαίτου (Athenæus, xiv. 644). If

author of most of the catalogues (not merely of Aristotle, but also of other philosophers) given by Diogenes;[a] yet that nevertheless Diogenes himself had no direct acquaintance with the works of Hermippus, but copied these catalogues at second-hand from some later author, probably Favorinus. This last supposition is noway made out.

It seems thus probable that the Catalogue given by Diogenes derives its origin from Hermippus or Kallimachus, enumerating the titles of such works of Aristotle as were contained in the Alexandrine library. But the aggregate of works composing *our* Aristotle is noway in harmony with that Catalogue. It proceeds from a source independent and totally different, viz., the edition and classification first published by the Rhodian Andronikus, in the generation between the death of Cicero and the Christian era. To explain the existence of these two distinct and independent sources and channels, we must have recourse to the remarkable narrative (already noticed in my chapter on the Platonic Canon), delivered mainly by Strabo and less fully by Plutarch, respecting the fate of the Aristotelian library after Aristotle's death.

At the decease of Aristotle, his library and MSS. came to Theophrastus, who continued chief of the Peripatetic school at Athens for thirty-five years, until his death in 287 B.C. Both Aristotle and Theophrastus not only composed many works of their own, but also laid out much money in purchasing or copying the works of others;[b] especially we are told that Aristotle, after the death of Speusippus, expended three talents in purchasing his books. The entire library of Theophrastus, thus enriched from two sources, was bequeathed by his testament

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machus carried down his catalogue of the contents of the library to works so unimportant as these, we may surely believe that he would not omit to catalogue such works of Aristotle as were in it. He appears to have made a list of the works of Demokritus (*i.e.* such as were in the library) with a glossary. See Brandis (Aristoteles, Berlin, 1853, p. 74); also Suidas *v.* Καλλίμαχος, Diogen. Laert. viii. 86; Dionys. Hal. De Dinarcho, pp. 630, 652 R.; Athenæus, viii. 336, xv. 669.

[a] Heitz, Die Verl. Schr. des Aristot. pp. 45-48.

Patricius, in his Discuss. Peripatetic. (t. i. pp. 13-18), had previously considered Hermippus as having prepared a Catalogue of the works of Aristotle, partly on the authority of the Scholion annexed to the conclusion of the Metaphysica of Theophrastus. Hermippus recited the testament of Aristotle (Athenæus, xiii. 589).

Both Valentine Rose and Bernays regard Andronikus as author of the Catalogue of Aristotle in Diogenes. But I think that very sufficient reasons to refute this supposition have been shown by Heitz, pp. 49-52.

The opinion given by Christ, respecting the Catalogue which we find in Diogenes Laertius—"illum catalogum non Alexandrinæ bibliothecæ, sed exemplarium Aristotelis ab Apelliconte Athenas translatorum fuisse equidem censeo"—is in substance the same as that of Rose and Bernays. I do not concur in it. (Christ, Studia in Aristotelis Libros Metaphysicos, Berlin, 1853, p. 105).

[b] Diog. L. iv. 5; Aulus Gellius, N. A. iii. 17.

to a philosophical friend and pupil, Neleus;[a] who left Athe and carried away the library with him to his residence at town of Skêpsis, in the Asiatic region known as Æolis, r Troad. At Skêpsis the library remained for the greater p of two centuries, in possession of the descendants of Nel men of no accomplishments and no taste for philosophy. was about thirty or forty years after the death of Theophra that the kings of Pergamus began to occupy themselves collecting their royal library, which presently reached a m nitude second only to that of Alexandria. Now Skêpsis under their dominion, and it would seem that the kings se the books belonging to their subjects for the use of the r library; for we are told that the heirs of Neleus were force conceal their literary treasures in a cellar, subject to great inj partly from damp, partly from worms. In this ruinous hid place the manuscripts remained for nearly a century and a —"*blattarum ac tinearum epulæ,*"—until the Attalid dyn at Pergamus became extinct. The last of these kings, Att died in 133 B.C., bequeathing his kingdom to the Romans. fear of requisitions for the royal library being thus at end manuscripts were in course of time withdrawn by their propri from concealment, and sold for a large sum to Apelliko native of Teos, a very rich resident at Athens, and attache the Peripatetic sect. Probably this wealthy Peripatetic alr possessed a library of his own, with some Aristotelian works; the new acquisitions from Skêpsis, though not his whole s formed the most rare and precious ingredients in it. Here, the manuscripts and library both of Aristotle and Theophr became, for the first time since 287 B.C., open to the inspe of the Athenian Peripatetics of the time (about 100 B.C.), as as of other learned men. Among the stock were cont many compositions which the Scholarchs, successors of T pharstus at Athens, had neither possessed nor known.[b] Bu

[a] From a passage of Lucian (De Parasito. c. xxxv.) we learn that Aristoxenus spoke of himself as friend and guest of Neleus: καὶ τίς περὶ τούτου λέγει; Πολλοὶ μὲν καὶ ἄλλοι, Ἀριστόξενος δὲ ὁ μουσικός, πολλοῦ λόγου ἄξιος καὶ αὐτὸς δὲ παράσιτος Νήλεως ἦν.

[b] Strabo, xiii. 608, 609; Athenæus, v. 214. The narrative of Strabo has been often misunderstood and impugned, as if he had asserted that none of the main works of Aristotle had ever been published until they were thus exhumed by Apellikon. This is the supposed allegation which Stahr, Zeller, and others taken so much pains to refute. reality Strabo says no such thing words affirm or imply the direct co viz., that many works of Aristot merely the exoteric works but oth sides, *had* been published earlie the purchase made by Apellikon. Strabo says is, that few of these were in possession of the Peripateti larchs at Athens before the time purchase; and he explains thus was that these Scholarchs, duri century intervening, had paid littl

manuscripts were found imperfect, seriously damaged, and in a state of disorder. Apellikon did his best to remedy that mischief, by causing new copies to be taken, correcting what had become worm-eaten, and supplying what was defective or illegible. He appears to have been an erudite man, and had published a biography of Aristotle, refuting various calumnies advanced by other biographers; but being (in the words of Strabo) a lover of books rather than a philosopher, he performed the work of correction so unskilfully, that the copies which he published were found full of errors.[a] In the year 86 B.C., Sylla besieged Athens, and captured it by storm; not long after which he took to himself as a perquisite the library of Apellikon, and transported it to Rome.[b] It was there preserved under custody of a librarian, and various literary Greeks resident at Rome obtained access to it, especially Tyrannion, the friend of Cicero and a warm admirer of Aristotle, who took peculiar pains to gain the favour of the librarian.[c] It was there also that the Rhodian Andronikus obtained access to the Aristotelian works.[d] He classified them to a great degree anew, putting in juxtaposition the treatises most analogous in subject;[e] moreover,

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tion to the profound and abstruse speculations of Aristotle; how it was that they had confined themselves to dialectic and rhetorical debate on special problems. I see no ground for calling in question the fact affirmed by Strabo—the poverty of the Peripatetic school-library at Athens; though he may perhaps have assigned a greater importance to that fact than it deserves, as a means of explaining the intellectual working of the Peripatetic Scholarchs from Lykon to Kritolaus. The philosophical impulse of that intervening century seems to have turned chiefly towards ethics and the *Summum Bonum*, with the conflicting theories of Platonists, Peripatetics, Stoics, and Epikureans thereupon.

[a] Strabo, xiii. 609. *ἦν δὲ ὁ Ἀπελλικῶν φιλόβιβλος μᾶλλον ἢ φιλόσοφος, διὸ καὶ ζητῶν ἐπανόρθωσιν τῶν διαβρωμάτων, εἰς ἀντίγραφα καινὰ μετήνεγκε τὴν γραφὴν ἀναπληρῶν οὐκ εὖ, καὶ ἐξέδωκεν ἁμαρτάδων πλήρη τὰ βίβλια.*

[b] Strabo, xiii. 609; Plutarch, Sylla, c. xxvi.

[c] Strabo, xiii. 609. *Τυραννίων ὁ γραμματικὸς διεχειρίσατο φιλαριστοτέλης ὤν, θεραπεύσας τὸν ἐπὶ τῆς βιβλιοθήκης.* Tyrannion had been the preceptor of Strabo (xii. 548); and Boëthus, who studied Aristotle along with Strabo, was a disciple of the Rhodian Andronikus. See Ammonius ad Categorias, f. 8; and Ravaisson, Essai sur la Métaphysique d'Aristote, Introduction, p. 10.

[d] Plutarch, Sylla, c. xxvi.

[e] The testimony of Porphyry in respect to Andronikus, and to the real service performed by Andronikus, is highly valuable. Porphyry was the devoted disciple and friend, as well as the literary executor, of Plotinus; whose writings were left in an incorrect and disorderly condition. Porphyry undertook to put them in order and publish them; and he tells us that, in fulfilling this promise, he followed the example of what Andronikus had done for the works of Aristotle and Theophrastus. Ἐπεὶ δὲ αὐτὸς (Plotinus) *τὴν διόρθωσιν καὶ τὴν διάταξιν τῶν βιβλίων ποιεῖσθαι ἡμῖν ἐπέτρεψεν, ἐγὼ δὲ ἐκείνῳ ζῶντι ὑπεσχόμην καὶ τοῖς ἄλλοις ἑταίροις ἐπηγγειλάμην ποιῆσαι τοῦτο, πρῶτον μὲν τὰ βίβλια οὐ κατὰ χρόνους ἐᾶσαι φύρδην ἐκδεδομένα ἐδικαίωσα, μιμησάμενος δ' Ἀπολλόδωρον τὸν Ἀθηναῖον καὶ Ἀνδρόνικον τὸν Περιπατητικόν, ὧν ὁ μὲν Ἐπίχαρμον τὸν κωμῳδιογράφον εἰς δέκα τόμους φέρων συνήγαγεν, ὁ δὲ τὰ Ἀριστοτέλους καὶ Θεοφράστου εἰς πραγματείας διεῖλε, τὰς οἰκείας ὑποθέσεις εἰς ταὐτὸν συναγαγών, οὕτω δὴ καὶ ἐγὼ πεντήκοντα τέσσαρα ὄντα ἔχων τὰ τοῦ Πλωτίνου βίβλια διεῖλον μὲν εἰς ἓξ ἐννεάδας, τῇ τελειότητι τοῦ ἓξ ἀριθμοῦ καὶ ταῖς ἐννεάσιν ἀσμένως ἐπιτυχών, ἑκάστῃ*

he corrected the text, and published a new edition of ·
manuscripts, with a tabulated list. This was all the m
necessary, because some booksellers at Rome, aiming only
sale and profit, had employed bad writers, and circula
inaccurate copies, not collated with the originals.[a] Th
originals, however, were so damaged, and the restitutions m
by Apellikon were so injudicious, that the more careful cri
who now studied them were often driven to proceed on m
probable evidence.

This interesting narrative—delivered by Strabo, the jur
contemporary of Andronikus, and probably derived by him eit
from Tyrannion his preceptor or from the Sidonian Boêthı
and other philosophical companions jointly, with whom he l
prosecuted the study of Aristotle—appears fully worthy of tr
The proceedings both of Apellikon and of Sylla prove, w
indeed we might have presumed without proof, that the recov
of these long-lost original manuscripts of Aristotle and Th
phrastus excited great sensation in the philosophical world
Athens and of Rome. With such newly-acquired materi
a new epoch began for the study of these authors. The m
abstruse philosophical works of Aristotle now came into
foreground under the auspices of a new Scholarch; whe
Aristotle had hitherto been chiefly known by his more pop
and readable compositions. Of these last, probably, copies
have been acquired to a certain extent by the previous Peripat
Scholarchs or School at Athens; but the School had b
irreparably impoverished, so far as regarded the deeper spec
tions of philosophy, by the loss of those original manuscr
which had been transported from Athens to Skêpsis. What
Aristotelian Scholarchs, prior to Andronikus, chiefly posse
and studied, of the productions of their illustrious founder, w
chiefly the *exoteric* or extra-philosophical and comparati
popular:—such as the dialogues; the legendary and histor

δὲ ἐννεάδι τὰ οἰκεῖα φέρων συνεφόρησα, δοὺς καὶ τάξιν πρώτην τοῖς ἐλαφροτέροις προβλήμασιν. (Porphyry, Vita Plotini, p. 117, Didot.) Porphyry here distinctly affirms that Andronikus rendered this valuable service not merely to the works of Aristotle, but also to those of Theophrastus. This is important, as connecting him with the library conveyed by Sylla to Rome; which library we know to have contained the manuscripts of both these philosophers. And in the Scholion appended to the Metaphysica of Theophrastus (p. 323, Brandis) we are told that Andronikus and Hermippus made a catalogue of the works of T phrastus, in which the Metaphysica not included.

[a] Strabo, xiii. 609: βιβλιοπῶλαί γραφεῦσι φαύλοις χρώμενοι καὶ οὐκ βάλλοντες, &c.

[b] Strabo, xvi. 757. Stahr, in his work, Aristoteles unter den Röı p. 32, considers that this circums lessens the credibility of Strabo. I the contrary. No one was so like have studied the previous history o MSS. as the editors of a new edition

collections; the facts respecting constitutional history of various Hellenic cities; the variety of miscellaneous problems respecting Homer and a number of diverse matters; the treatises on animals and on anatomy, &c.[a] In the Alexandrine library (as we see by the Catalogue of Diogenes) there existed all these and several philosophical works also; but that library was not easily available for the use of the Scholarchs at Athens, who worked upon their own stock, confining themselves mainly to smooth and elegant discourses on particular questions, and especially to discussions, with the Platonists, Stoics, and Epikureans, on the *principia* of Ethics, without any attempt either to follow up or to elucidate the more profound speculations (logical, physical, metaphysical, cosmical) of Aristotle himself. A material change took place when the library of Apellikon came to be laid open and studied, not merely by lecturers in the professorial chair at Athens, but also by critics like Tyrannion and Andronikus at Rome. These critics found therein the most profound and difficult philosophical works of Aristotle in the handwriting of the philosopher himself; some probably, of which copies may have already existed in the Alexandrine library, but some also as yet unpublished. The purpose of Andronikus, who is described as Peripatetic Scholarch, eleventh in succession from Aristotle, was not simply to make a Catalogue (as Hermippus had made at Alexandria), but to render a much greater service, which no critic could render without having access to original MSS., namely, to obtain a correct text of the books actually before him, to arrange these books in proper order, and then to publish and explain them,[b] but to take no account of other

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[a] Strabo, xiii. 609: *συνέβη δὲ τοῖς ἐκ τῶν περιπάτων τοῖς μὲν πάλαι τοῖς μετὰ Θεόφραστον, ὅλως οὐκ ἔχουσι τὰ βίβλια πλὴν ὀλίγων καὶ μάλιστα τῶν ἐξωτερικῶν, μηδὲν ἔχειν φιλοσοφεῖν πραγματικῶς, ἀλλὰ θέσεις ληκυθίζειν· τοῖς δ' ὕστερον, ἀφ' οὗ τὰ βίβλια ταῦτα προῆλθεν, ἄμεινον μὲν ἐκείνων φιλοσοφεῖν καὶ ἀριστοτελίζειν, ἀναγκάζεσθαι μέντοι τὰ πολλὰ εἰκότα λέγειν διὰ τὸ πλῆθος τῶν ἁμαρτιῶν.* Also Plutarch, Sylla, c. xxvi.

The passage of Strabo is so perspicuous and detailed, that it has all the air of having been derived from the best critics who frequented the library at Rome, where Strabo was when he wrote (*καὶ ἔνθαδε καὶ ἐν Ἀλεξανδρείᾳ*, xiii. 609). The Peripatetic Andronikus, whom he names among the celebrated Rhodians (xiv. 655), may have been among his informants. His statements about the bad state of the manuscripts; the unskilful emendations of Apellikon; the contrast between the vein of Peripatetic study, as it had stood before the revelation of the manuscripts, and as it came to stand afterwards; the uncertain evidences upon which careful students, even with the manuscripts before them, were compelled to proceed; the tone of depreciation in which he speaks of the carelessness of booksellers who sought only for profit,—all these points of information appear to me to indicate that Strabo's informants were acute and diligent critics, familiar with the library, and anxious both for the real understanding of these documents, and for philosophy as an end.

[b] Plutarch, Sylla, c. xxvi. Spengel ("Ueber die Reihenfolge der naturwissenschaftlichen Schriften des Aristoteles," München. philol. Abhandl. 1848,) remarks justly that the critical arrangement of Aristotle's writings, for collective

Aristotelian works in the Alexandrine library or elsewhere. T
Aristotelian philosophy thus passed into a new phase. O
editions of Aristotle may be considered as taking their date fr
this critical effort of Andronikus, with or without subseque
modifications by others, as the case may be.

The explanation just given, coinciding on many points w
Brandis and Heitz, affords the most probable elucidation of th
obscurity which arises about the Aristotelian Canon, when
compare *our* Aristotle with the Catalogue of Diogenes—
partial likeness, but still greater discrepancy, between the t
It is certain that neither Cicero[a] nor the great Alexandr
literati, anterior to and contemporary with him, knew Aristo
from most of the works which we now possess. They knew h
chiefly from the dialogues, the matters of history and lege
some zoological books, and the problems; the dialogues, and
historical collections respecting the constitutions of Helle
cities,[b] being more popular and better known than any ot
works. While the Republic of Plato is familiar to them, t

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publication, begins from the library of Apellikon at Rome, not from that of Alexandria. See p. 146: "Mehr als zweihundert Jahre lang fehlt uns alle nähere Kunde über die peripatetische Schule. Erst mit der viel besprochenen Auffindung der Bibliothek des Aristoteles in Athen und deren Wegführung nach Rom durch Sulla wird ein regeres Studium für die Schriften des Philosophen bemerkbar—*und zwar jetzt eigentlich der Schriften, weniger der Lehre und Philosophie im Allgemeinen, welche früher allein beachtet worden ist.* Wir möchten sagen, von jetzt an beginne das philologische Studium mit den Werken des Aristoteles, die kritische und exegetische Behandlung dieser durch Tyrannion, Andronikus, Adrastus und viele andre nachfolgende," &c.

[a] This is certain, from the remarks addressed by Cicero to Trebatius at the beginning of the Ciceronian Topica, that in his time Aristotle was little known and little studied at Rome, even by philosophical students. Trebatius knew nothing of the Topica, until he saw the work by chance in Cicero's library, and asked information about the contents. The reply of Cicero illustrates the little notice taken of Aristotle by Roman readers. "Cum autem ego te, non tam vitandi laboris mei causâ, quam quia tua id interesse arbitrarer, vel ut eos per te ipse legeres, vel ut totam rationem a doctissimo quodam rhetore acciperes, hortatus essem, utrumque ut ex te audieban expertus. Sed a libris te obscurita jecit: rhetor autem ille magnus opinor, *Aristotelia se ignorare* respo Quod quidem minime sum admir eum philosophum rhetori non esse c tum, *qui ab ipsis philosophis, præter modum paucos, ignoraretur.*" Com also Cicero, Academ. Post. i. 3, 10.

[b] Even the philosophical comment on Aristotle, such as David the menian, seem to have known the work of Aristotle called Πολιτεῖαι history of the constitutions of 250 lenic cities), better than the theor work which we possess, called the litica; though they doubtless knew (See Scholia ad Categorias, Brandis, b. 20; p. 24, a. 25; p. 25, b. 5.)—We in Schneider's Preface to the Aristot Politica (p. x.): "Altum et mi silentium est apud antiquitatem Gr et Romanam de novâ Aristotelis R licâ, cum omnes ferè scriptores Gr Romani, mentione Reipublicæ Plat pleni, vel laudibus vel vituperiis abundant."—There is no clear refe to the Aristotelian Politica earlier Alexander of Aphrodisias. Both H brand (Geschichte der Staats- und R Philosophen, t. i. pp. 358-361), Oncken (Staatslehre des Aristot. p 66), think that the Aristotelian P was not published until after the chase of the library by Apellikon.

exhibit no knowledge of our Aristotelian Politica, in which treatise the criticism upon the Platonic Republic is among the most interesting parts. When we look through the contents of our editions of Aristotle the style and manner of handling is indeed pretty much the same throughout, but the subjects will appear extremely diverse and multifarious; and the encyclopedical character of the author, as to science and its applications, will strike us forcibly. The entire and real Aristotle, however, was not only more encyclopedical as to subjects handled, but also more variable as to style and manner of handling; passing from the smooth, sweet, and flowing style—which Cicero extols as characterizing the Aristotelian dialogues—to the elliptical brevity and obscurity which we now find so puzzling in the De Animâ and the Metaphysica.[a]

I shall assume this variety, both of subject and of handling, as a feature to be admitted and allowed for in Aristotle, when I come to discuss the objections of some critics against the authenticity of certain treatises among the forty-six which now pass under his name. But in canvassing the Aristotelian Canon I am unable to take the same ground as I took in my former work, when reviewing the Platonic Canon. In regard to Plato, I pointed out a strong antecedent presumption in favour of the Canon of Thrasyllus—a canon derived originally from the Alexandrine librarians, and sustained by the unanimous ad-

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[a] What Strabo asserts about the Peripatetic Scholarchs succeeding Theophrastus (viz., *μηδὲν ἔχειν φιλοσοφεῖν πραγματικῶς, ἀλλὰ θέσεις ληκυθίζειν*: that they could not handle philosophy in a businesslike way—with those high generalities and that subtle analysis which was supposed to belong to philosophy—but gave smooth and ornate discourses on set problems or theses) is fully borne out by what we read in Cicero about these same Peripatetics. The Stoics (immediate successors and rivals) accused their Peripatetic contemporaries even of being ignorant of Dialectic; which their founder, Aristotle, in his works that we now possess, had been the first to raise into something like a science. Cicero says (De Finibus, iii. 12, 41): "His igitur ita positis (inquit Cato) sequitur magna contentio: quam tractatam à Peripateticis mollius (*est enim eorum consuetudo dicendi non satis acuta, propter ignorationem Dialecticæ*), Carneades tuus, egregiâ quâdam exercitatione in dialecticis summâque eloquentiâ, rem in summum discrimen adduxit." Also Cicero, in Tuscul. Disput. iv. 5, 9: "Quia Chrysippus et Stoici, quum de animi perturbationibus disputant, magnam partem in iis partiendis et definiendis occupati sunt, illa eorum perexigua oratio est, quâ medeantur animis nec eos turbulentos esse patiantur. Peripatetici autem *ad placandos animos multa afferunt, spinas partiendi et definiendi prætermittunt.*" This last sentence is almost an exact equivalent of the words of Strabo: *μηδὲν ἔχειν φιλοσοφεῖν πραγματικῶς, ἀλλὰ θέσεις ληκυθίζειν*. Aristotle himself, in the works which we possess, might pass as father of the Stoics rather than of the Peripatetics; for he abounds in classification and subdivision (spinas partiendi et dividendi), and is even derided on this very ground by opponents (see Atticus ap. Euseb. Præp. Ev. xv. 4); but he has nothing of the polished amplification ascribed to the later Peripatetics by Strabo and Cicero. Compare, about the Peripatetics from Lykon to Kritolaus, Cicero, De Finibus, v. 5: "Lyco, oratione locuples, rebus ipsis jejunior." Plutarch (Sylla, c. xxvi.) calls these later Peripatetics *χαριέντες καὶ φιλόλογοι*, &c.

hesion of antiquity. In regard to Aristotle, there are no simil grounds of presumption to stand upon. We have good reas for believing that the works both of Plato and Aristotle—if n all the works, at least many of them, and those the mo generally interesting—were copied and transmitted early to t Alexandrine library. Now *our* Plato represents that which w possessed and accredited as Platonic by the Byzantine Arist phanes and the other Alexandrine librarians; but *our* Aristot does not, in my judgment, represent what these libraria possessed and accredited as Aristotelian. That which they th accredited stands recorded in the Catalogue given by Diogen probably the work of Hermippus, as I have already state while *our* Aristotle is traceable to the collection at Athens, i cluding that of Apellikon, with that which he bought from t heirs of Neleus, and to the sifting, correction, and classificatio applied thereto by able critics of the first century B.C. and su sequently; among whom Andronikus is best known. We m easily believe that the library of Apellikon contained vario compositions of Aristotle, which had never been copied for t Alexandrine library—perhaps never prepared for publication all, so that the task of arranging detached sections or mors into a whole, with one separate title, still remained to be p formed. This was most likely to be the case with abstru speculations, like the component books of the Metaphysi which Theophrastus may not have been forward to tender, a which the library might not be very eager to acquire, hav already near four hundred other volumes by the same auth These reserved works would therefore remain in the library Theophrastus, not copied and circulated (or at least circula only to a few private philosophical brethren, such as Eudêmu so that they never became fully published until the days Apellikon.[a]

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[a] The two Peripatetic Scholarchs at Athens, Straton and Lykon, who succeeded (after the death of Theophrastus and the transfer of his library to Skêpsis) in the conduct of the school, left at their decease collections of books, of which each disposes by his will (Diogen. L. v. 62; v. 73). The library of Apellikon, when sent by Sylla to Rome, contained probably many other Aristotelian MSS., besides those purchased from Skêpsis.

Michelet, in his Commentary on the Nikomachean Ethica, advances a theory somewhat analogous but bolder, respecting the relation between the Catalogue given by Diogenes, and the works contained in *our* Aristotle. Comm. p "Id solum addam, hoc Aristotelis (the Nikomachean Ethica), ut rel omnia, ex brevioribus commentation consarcinatum fuisse, quæ quidem Aristotele in lucem prodierint, cum quæque disciplina, e quâ excerpta fue in admirabilem illum quem habemu dinem jam ab ipso Aristotele sive quo ejus discipulo redacta, in libris Aristo manu scriptis latitaverit, qui hered ad Nelei prolem, ut notum est, transm in cellâ illâ subterraneâ Scepsiâ abs diti fuerunt, donec Apellicon Teiu Rhodius Andronicus eos ediderint. guntur autem commentationum ill

But though the edition published by Andronikus would thus contain many genuine works of Aristotle not previously known or edited, we cannot be sure that it would not also include some which were spurious. Reflect what the library of Apellikon, transported to Rome by Sylla, really was. There was in it the entire library of Theophrastus; probably, also, that of Neleus, who must have had some books of his own, besides what he inherited from Theophrastus. It included all the numerous manuscript works composed by Aristotle and Theophrastus, and many other manuscript works purchased or acquired by them, but composed by others—the whole in very bad order and condition; and, moreover, the books which Apellikon possessed before, doubtless as many Aristotelian books as he could purchase. To distinguish, among this heterogeneous mass of manuscripts, which of them were the manuscripts composed by Aristotle; to separate these from the writings of Theophrastus, Eudêmus, or other authors, who composed various works of their own upon the same subjects and with the same titles as those of Aristotle—required extreme critical discernment and caution; the rather, since there was no living companion of Aristotle or Theophrastus to guide or advise, more than a century and a half having elapsed since the death of Theophrastus, and two centuries since that of Aristotle. Such were the difficulties amidst which Apellikon, Tyrannion, and Andronikus had to decide, when they singled out the manuscripts of Aristotle to be published. I will not say that they decided wrongly; yet neither can I contend (as I argued in the case of the Platonic dialogues) that the presumption is very powerful in favour of that Canon which their decision made legal. The case is much more open to argument, if any grounds against the decision can be urged.

Andronikus put in, arranged, and published the treatises of Aristotle (or those which he regarded as composed by Aristotle) included in the library conveyed by Sylla to Rome. I have already observed, that among these treatises there were some, of which copies existed in the Alexandrine library (as represented

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de Moribus tituli in elencho librorum Aristotelis apud Diogenem (v. 22-26): περὶ ἀρετῶν (Lib. ii., iii. c. 6-fin. iv. nostrorum Ethicorum); περὶ ἑκουσίου (Lib. iii. c. 1-5); περὶ δικαιοσύνης (Lib. v.); περὶ φιλίας (Lib. viii.-ix.); περὶ ἡδονῆς (Lib. x. c. 1-5), &c. Plerumque enim non integra volumina, sed singulos libros vel singula volumina diversarum disciplinarum, Diogenes in elencho suo enumeravit."

In his other work (Essai sur la Métaphysique d'Aristote, pp. 202, 205, 225) Michelet has carried this theory still farther, and has endeavoured to identify separate fragments of the Aristotelian works now extant, with various titles in the Catalogue given by Diogenes. The identification is not convincing.

by the Catalogue of Diogenes), but a still greater number whi cannot be identified with the titles remaining of works the preserved. As to the works common to both libraries, we mu remember that Andronikus introduced a classification of l own, analogous to the Enneads applied by Porphyry to t works of Plotinus, and to the Tetralogies adopted by Thrasyll in regard to the Dialogues of Plato; so that even these wor might not be distributed in the same partitions under each the two arrangements. And this is what we actually see when compare the Catalogue of Diogenes with *our* Aristotle. Rhetor Ethics, Physics, Problems, &c., appear in both as titles or su jects, but distributed into a different number of books or sectic in one and in the other; perhaps, indeed, the compositions a not always the same.

Before I proceed to deal with the preserved works of A stotle—those by which alone he is known to us, and was kno to mediæval readers, I shall say a few words respecting t import of a distinction which has been much canvassed, co veyed in the word *exoteric* and its opposite. This term, us on various occasions by Aristotle himself, has been also e ployed by many ancient critics, from Cicero downwards; wh by mediæval and modern critics, it has not merely been e ployed, but also analysed and elucidated. According to Cicero (earliest writer subsequent to Aristotle in whom we find the ter it designates one among two classes of works composed by A stotle: *exoteric works* were those composed in a popular st and intended for a large, indiscriminate circle of readers: be contrasted with other works of elaborated philosophical reasoni which were not prepared for the public taste, but left in condition of memorials for the instruction of a more se class of studious men. Two points are to be observed respect Cicero's declaration. First, he applies it to the writings of Aristotle exclusively, but also to those of Theophrastus, even of succeeding Peripatetics; secondly, he applies it dire to such of their writings only as related to the discussion the *Summum Bonum*.[a] Furthermore, Cicero describes the w

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[a] Cicero, De Finibus, v. 5, 12. "De summo autem bono, quia duo genera librorum sunt, unum populariter scriptum, quod ἐξωτερικὸν appellabant, alterum limatius, quod in commentariis reliquerunt, non semper idem dicere videntur: nec in summâ tamen ipsâ aut varietas est ulla, apud hos quidem quos nominavi, aut inter ipsos dissensio."

The word *limatius* here cannot s to high polish and ornament of (nitor orationis), but must be equiv to ἀκριβέστερον, *doctius*, *subtilius*, & Buhle and others have already reme Buhle, De Libris Aristot. Exote Acroam. p. 115; Madvig, ad Cice Finib. v. 12; Heitz, p. 134), appl profound reasoning, with distinctio

which Aristotle called exoteric, as having *proems* or introductory prefaces.[a]

In the main, the distinction here drawn by Cicero, understood in a very general sense, has been accepted by most following critics as intended by the term *exoteric:* something addressed to a wide, indiscriminate circle of general readers or hearers, and intelligible or interesting to them without any special study or training—as contrasted with that which is reserved for a smaller circle of students assumed to be specially qualified. But among those who agree in this general admission, many differences have prevailed. Some have thought that the term was not used by Aristotle to designate any writings either of his own or of others, but only in allusion to informal oral dialogues or debates. Others again, feeling assured that Aristotle intended by the term to signify some writings of his own, have searched among the works preserved, as well as among the titles of the works lost, to discriminate such as the author considered to be exoteric: though this search has certainly not ended in unanimity; nor do I think it has been successful. Again, there have not been wanting critics (among them, Thomas Aquinas and Sepulveda), who assign to the term a meaning still more vague and undefined; contending that when Aristotle alludes to "exoteric discourses," he indicates simply some other treatise of his own, distinct from that in which the allusion occurs, without meaning to imply anything respecting its character.[b]

To me it appears that this last explanation is untenable,

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unusual precision, which it required a careful preparatory training to apprehend. This employment of the word *limatius* appears to me singular, but it cannot mean anything else here. The *commentarii* are the general heads—plain unadorned statements of facts or reasoning —which the orator or historian is to employ his genius in setting forth and decorating, so that it may be heard or read with pleasure and admiration by a general audience. Cicero, in that remarkable letter wherein he entreats Lucceius to narrate his (Cicero's) consulship in an historical work, undertakes to compose "commentarios rerum omnium" as materials for the use of Lucceius (Ep. ad Famil. v. 12. 10). His expression, "in commentariis reliquerunt," shows that he considered the exoteric books to have been prepared by working up some naked preliminary materials into an ornate and interesting form.

[a] Cicero, Ep. ad Att. iv. 16.

[b] Sepulveda, p. 125 (cited by Bernays, Dialoge des Aristoteles, p. 41): "Externos sermones sive exotericos solet Aristoteles libros eos appellare, quicunque sunt extra id opus in quo tunc versatur, ut jure pontificio periti consueverunt: non enim exoterici sermones seu libri certo aliquo genere continentur, ut est publicus error."

Zeller lends his high authority to an explanation of *exoteric* very similar to the above. (Gesch. der Philos. ii. 2, p. 100, seq.:—"dass unter exoterischen Reden nicht eine eigene Klasse populär geschriebener Bücher, sondern nur überhaupt solche Erörterungen verstanden werden, welche nicht in den Bereich der vorliegenden Untersuchung gehören.") He discusses the point at some length; but the very passages which he cites, especially Physica, iv. 10, appear to me less favourable to his view than to that which I have stated in the text, according to which the word means *dialectic* as contrasted with *didactic*.

and that the term *exoteric* designates matter of a certain character, assignable to some extent by positive marks, but still more by negative; matter, in part, analogous to that defined by Cicero and other critics. But to conceive clearly or fully what its character is, we must turn to Aristotle himself, who is of course the final authority, wherever he can be found to speak in a decisive manner. His preserved works afford altogether eight passages (two of them indeed in the Eudemian Ethics, which, for the present at least, I shall assume to be his work), wherein the phrase "exoteric discourses" (ἐξωτερικοὶ λόγοι) occurs. Out of these eight passages, there are seven which present the phrase as designating some unknown matter, not farther specified, but distinct from the work in which the phrase occurs: "Enough has been said (or is said, Aristotle intimates) about this subject, even in the exoteric discourses." To wha it is that he here alludes—whether to other writings of his own or oral discussions of his own, or writing and speech of a particular sort by others—we are left to interpret as we bes may, by probable reason or conjecture. But there is one amon the eight passages, in which Aristotle uses the term *exoteric* a describing, not what is to be looked for elsewhere, but wha he is himself about to give in the treatise in hand. In th fourth book of the Physica, he discusses the three high abstrac tions, Place, Vacuum, Time. After making an end of the firs two, he enters upon the third, beginning with the followin words:—"It follows naturally on what has been said, that w should treat respecting Time. But first it is convenient to ac vert to the difficulties involved in it, by *exoteric discourse also*— whether Time be included among entities or among non-entities then afterwards, what is its nature. Now a man might suspec from the following reasons, that Time either absolutely doe not exist, or exists scarcely and dimly," &c. Aristotle the gives a string of dialectic reasons, lasting through one of th columns of the Berlin edition, for doubting whether Time reall exists. He afterwards proceeds thus, through two farthe columns:—"Let these be enumerated as the difficulties a companying the attributes of Time. What Time is, and wh is its nature, is obscure, as well from what has been hande down to us by others, as from what we ourselves have just go through;" [a] and this question also he first discusses dialecticall and then brings to a solution.

[a] Aristot. Physic. iv. 10, p. 217, b. 29. Ἐχόμενον δὲ τῶν εἰρημένων ἐστὶν ἐπελθεῖν περὶ χρόνου· πρῶτον δὲ καλῶς ἔχει δια ρῆσαι περὶ αὐτοῦ καὶ διὰ τῶν ἐξωτερικ

Now what is it that Aristotle here means by "exoteric discourse?" We may discover by reading the matter comprised between the two foregoing citations. We find a string of perplexing difficulties connected with the supposition that Time exists: such as, "That all Time is either past or future, of which the former no longer exists, and the latter does not yet exist; that the Now is no part of Time, for every Whole is composed of its Parts, and Time is not composed of Nows," &c. I do not go farther here into these subtle suggestions, because my present purpose is only to illustrate what Aristotle calls "exoteric discourse," by exhibiting what he himself announces to be a specimen thereof. It is the process of noticing and tracing out all the doubts and difficulties (ἀπορίας) which beset the enquiry in hand, along with the different opinions entertained about it either by the vulgar, or by individual philosophers, and the various reasons whereby such opinions may be sustained or impugned. It is in fact the same process as that which, when performed (as it was habitually and actively in his age) between two disputants, he calls *dialectic debate;* and which he seeks to encourage as well as to regulate in his treatise entitled Topica. He contrasts it with philosophy, or with the strictly didactic and demonstrative procedure: wherein the teacher lays down principles which he requires the learner to admit, and then deduces from them, by syllogisms constructed in regular form, consequences indisputably binding on all who have admitted the principles. But though Aristotle thus distinguishes Dialectic from Philosophy, he at the same time declares it to be valuable as an auxiliary towards the purpose of philosophy, and as an introductory exercise before the didactic stage begins.

λόγων, πότερον τῶν ὄντων ἐστὶν ἢ τῶν μὴ ὄντων, εἶτα τίς ἡ φύσις αὐτοῦ. ὅτι μὲν οὖν ἢ ὅλως οὐκ ἔστιν, ἢ μόλις καὶ ἀμυδρῶς, ἐκ τῶνδέ τις ἂν ὑποπτεύσειεν. Then, after a column of text urging various *ἀπορίας* as to whether Time is or is not, he goes on, p. 218, a. 31:—*Περὶ μὲν οὖν τῶν ὑπαρχόντων αὐτῷ τοσαῦτ' ἔστω διηπορημένα. τί δ' ἐστὶν ὁ χρόνος, καὶ τίς αὐτοῦ ἡ φύσις, ὁμοίως ἔκ τε τῶν παραδεδομένων ἄδηλόν ἐστι, καὶ περὶ ὧν τυγχάνομεν διεληλυθότες πρότερον*—thus taking up the questions, What Time is? What is the nature of Time? Upon this he goes through another column of *ἀπορίαι*, difficulties and counter-difficulties, until p. 219, a. 1, when he approaches to a positive determination, as the sequel of various negatives —*ὅτι μὲν οὖν οὔτε κίνησις οὔτ' ἄνευ κινήσεως ὁ χρόνος ἐστί, φανερόν. ληπτέον δέ, ἐπεὶ ζητοῦμεν τί ἐστιν ὁ χρόνος, ἐντεῦθεν ἀρχομένοις, τί τῆς κινήσεώς ἐστιν.* He pursues this positive determination throughout two farther columns (see *ὑποκείσθω*, a. 30), until at length he arrives at his final definition of Time—*ἀριθμὸς κινήσεως κατὰ τὸ πρότερον καὶ ὕστερον, καὶ συνεχὴς (συνεχοῦς γάρ)*—which he declares to be *φανερόν*, p. 220, a. 25.

It is plain that the phrase *ἐξωτερικοὶ λόγοι* here designates the preliminary dialectic tentative process, before the final affirmative is directly attempted, as we read in De Gener. et Corr. i. 3, p. 317, b. 13: *περὶ μὲν οὖν τούτων ἐν ἄλλοις τε διηπόρηται καὶ διώρισται τοῖς λόγοις ἐπὶ πλεῖον*—first, *τὸ διαπορεῖν*, next, *τὸ διορίζειν.*

The philosopher ought to show his competence as a dialectician by indicating and handling those various difficulties and controversies bearing on his subject, which have already been made known, either in writings or in oral debate.[a]

We thus learn, from the example furnished by Aristotle himself, what he means by "exoteric discourses." The epithet means literally, *extraneous to, lying on the outside of;* in the present case, on the outside of philosophy, considered in its special didactic and demonstrative march.[b] Yet what thus lies outside philosophy, is nevertheless useful as an accompaniment and preparation for philosophy. We shall find Aristotle insisting upon this in his Topica and Analytica; and we shall also find him introducing the exoteric treatment into his most abstruse philosophical treatises (the Physica is one of the most abstruse) as an accompaniment and auxiliary—a dialectic survey of opinions, puzzles, and controverted points, before he begins to lay down and follow out affirmative principles of his own. He does this not only throughout the Physica (in several othe

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[a] See Aristot. Topic. i. p. 100, b. 21, p. 101, a. 25, 34-36, b. 2. *Πρὸς δὲ τὰς κατὰ φιλοσοφίαν ἐπιστήμας (χρήσιμος ἡ πραγματεία), ὅτι δυνάμενοι πρὸς ἀμφότερα διαπορῆσαι ῥᾷον ἐν ἑκάστοις κατοψόμεθα τἀληθές τε καὶ τὸ ψεῦδος,* p. 105, b. 30. *Ποὸς μὲν οὖν φιλοσοφίαν κατ' ἀλήθειαν περὶ ἀυτῶν πραγματευτέον, διαλεκτικῶς δὲ πρὸς δόξαν.*

Compare also the commencement of book B. in the Metaphysica, p. 995, a. 28 seq., and, indeed, the whole of book B., which contains a dialectic discussion of numerous *ἀπορίαι*. Aristotle himself refers to it afterwards (Γ. p. 1004, a. 32) in the words *ὅπερ ἐν ταῖς ἀπορίαις ἐλέχθη.*

The Scholia of Alexander on the beginning of the Topica (pp. 251, 252, Brandis) are instructive; also his Scholia on p. 105, b. 30, p. 260, a. 24. *διαλεκτικῶς δὲ πρὸς δόξαν, ὡς ἐν ταύτῃ τῇ πραγματείᾳ* (*i.e.* the Topica) *καὶ ἐν τοῖς ῥητορικοῖς, καὶ ἐν τοῖς ἐξωτερικοῖς. καὶ γὰρ ἐν ἐκείνοις πλεῖστα καὶ περὶ τῶν. ἠθικῶν καὶ περὶ τῶν φυσικῶν ἐνδόξως λέγεται.*

We see here that Alexander understands by the *exoteric* the dialectic handling of opinions on physics and ethics.

In the Eudemian Ethica also (i. 8, p. 1217, b. 16) we find *ἐπέσκεπται δὲ πολλοῖς περὶ αὐτοῦ τρόποις, καὶ ἐν τοῖς ἐξωτερικοῖς λόγοις καὶ ἐν τοῖς κατὰ φιλοσοφίαν*, where we have the same antithesis in other words—Exoteric or Dialectic *versus* Philosophical or Didactic. Compare a clear statement in Simpliki (Schol. ad Physic. p. 364, b. 19). *Πρῶτ μὲν λογικῶς ἐπιχειρεῖ, τούτεστι πιθανῶς κ ἐνδόξως, καὶ ἔτι κοινότερόν πως καὶ διαλε τικώτερον. ἡ γὰρ διαλεκτικὴ ἡ 'Αριστοτ λους κοινή ἐστι μέθοδος περὶ παντὸς τ προτεθέντος ἐξ ἐνδόξων συλλογιζομένη— γὰρ λογικὸν ὡς κοινὸν εἴωθεν ἀντιδιαστέλλ τᾳ οἰκείῳ καὶ κατὰ φύσιν τοῦ πράγματος ἀποδεικτικῷ.*

[b] We find the epithet *ἐξωτερικὸς* us once by Aristotle, not in conjunction w *λόγοι*, but with *πράξεις*, designating th acts which are performed with a view some ulterior and extraneous end (τ *ἀποβαινόντων χάριν*, as contrasted w *πράξεις αὐτοτελεῖς—οἰκεῖαι*): Polit. p. 1325, b. 22-29. *σχολῇ λὰρ ἂν ὁ θεὸς ἔ καλῶς καὶ πᾶς ὁ κόσμος, οἷς οὐκ εἰσὶν ἐξω ρικαὶ πράξεις παρὰ τὰς οἰκείας τὰς αὐτ* In the Eudemian Ethics the phrase *τ ἀλλοτρίοις λόγοις σοφίζονται* is u much in the same sense as *τοῖς ἐξω ρικοῖς λόγοις*: *i.e.* opposed to *τοῖς οἰκε* —to that which belongs specially to scientific determination of the prob (Ethic. Eudem. i. p. 1218, b. 18).

The phrase *διὸ τῶν ἐξωτερικῶν λό* in Aristot. Physic. iv. 10, p. 217, b. and the different phrase *ἐκ τῶν εἰωθ λόγων λέγεσθαι*, in Phys. vi. 2, p. a. 13, appear to have the same mea and reference. Compare Prantl not Arist. Phys. p. 501.

passages besides that which I have just cited),[a] but also in the Metaphysica, the treatises De Animâ, De Generatione et Corruptione, &c.

Having thus learnt to understand, from one distinct passage of Aristotle himself, what he means by "exoteric discourses," we must interpret by the light of this analogy the other indistinct passages in which the phrase occurs. We see clearly that in using the phrase, he does not of necessity intend to refer to any other writings of his own—nor even to any other writings at all. He may possibly mean this; but we cannot be sure of it. He means by the phrase, a dialectic process of turning over and criticizing diverse opinions and probabilities: whether in his own writings, or in those of others, or in no writings at all, but simply in those oral debates which his treatise called Topica presupposes—this is a point which the phrase itself does not determine. He *may* mean to allude, in some cases where he uses the phrase, to his own lost dialogues; but he may also allude to Platonic and other dialogues, or to colloquies carried on orally by himself with his pupils, or to oral debates on intellectual topics between other active-minded men. When Bernays refers "exoteric discourse" to the lost Aristotelian Dialogues; when Madvig, Zeller, Torstrick, Forchhammer, and others, refer it to the contemporary oral dialectic [b]—I think that

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[a] If we turn to the beginning of book iv. of the Physica, where Aristotle undertakes to examine Τόπος, *Place*, we shall see that he begins by a dialectic handling of ἀπόριαι, exactly analogous to that which he himself calls ἐξωτερικοὶ λόγοι, when he proceeds to examine Χρόνος, *Time:* see Physica, iv. pp. 208, a. 32-35, 209, a. 30: 210, a. 12, b. 31. He does the like also about Κενόν, *Vacuum*, p. 213, a. 20, b. 28, and about Ἄπειρον, *Infinitum*, iii. p. 204, b. 4 (with the Scholia of Simplikius, p. 364, b. 20, Br.).

Compare the Scholion of Simplikius ad Physica (i. p. 329, b. 1, Br.)—Ἴσως δὲ (Simplikius uses this indecisive word ἴσως) ὅτι ἡ ἐφ' ἑκάτερα ἀπορία τοῦ λόγου ἐξωτερικὴ τις ἦν, ὡς Εὔδημός φησι, διαλεκτικὴ μᾶλλον οὖσα, with this last Scholion, on p. 364, b. 20, which describes the same dialectic handling, though without directly calling it *exoteric.*

[b] Ueberweg (Geschichte der Philos. des Alterthums, vol. i. § 46, p. 127, 2nd ed.) gives a just and accurate view of ἐξωτερικοὶ λόγοι, as conceived by Aristotle. See also the dissertation of Buhle, prefixed to his unfinished edition of Aristotle, De Aristotelis Libris Exotericis et Acroamaticis, pp. 107-152—which discusses this subject copiously, and gives a collection both of the passages and comments which bear upon it. It is instructive, though his opinion leans too much towards the supposition of a double doctrine. Bernays, in his dissertation, Die Dialoge des Aristoteles, maintains that by *exoteric books* are always meant the lost dialogues of Aristotle; and he employs much reasoning to refute the supposition of Madvig (Excurs. VII. ad Cicero, de Fin. p. 861), of Torstrick (ad Aristotel. de Animâ, p. 123), and also of Zeller, that by exoteric discourses are not meant any writings at all, but simply the colloquies and debates of cultivated men, apart from the philosophical schools. On the other hand, Forchhammer has espoused this last-mentioned opinion, and has defended it against the objections of Bernays (Forchhammer, Aristoteles und die exoterischen Reden, p. 16, seq.). The question is thus fully argued on both sides. To me it seems that each of the two opinions is partially right, and neither of them exclusively right. "Exoteric discourse," as I understand it, might be found both in the Aristotelian

neither of these explanations is in itself inadmissible. Th
context of each particular passage must decide which of the tw
is the more probable. We cannot go farther, in explainin
the seven doubtful passages where Aristotle alludes to th
"exoteric discourses," than to understand the general characte
and scope of the reasonings which he thus designates. Extra
philosophical, double-sided, dialectic, is in general (he holds
insufficient by itself, and valuable only as a preparation an
auxiliary to the didactic process. But there are some particula
points on which such dialectic leaves a result sufficient an
satisfactory, which can be safely accepted as the basis of futur
deduction. These points he indicates in the passages abov
cited; without informing us more particularly whether th
dialectic was written or spoken, and whether by himself or b
others.[a]

From the time of Cicero downward, a distinction has bee
drawn between some books of Aristotle which were exoteric, an
others that were not so; these last being occasionally designate
as *akroamatic*. Some modern critics have farther tried to poi
out which, among the preserved works of Aristotle, belonged
each of these heads. Now there existed, doubtless, in the days
Cicero, Strabo, Plutarch, and Gellius, books of Aristotle properl
called *exoteric*, *i.e.* consisting almost entirely of exoteric di
course and debate; though whether Aristotle himself wou
have spoken of an exoteric *book*, I have some doubt. Of suc
a character were his Dialogues. But all the works designat

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dialogues, and in the debates of cultivated men out of the schools, and also in parts of the Aristotelian akroamatic works. The argument of Bernays (p. 36, seq.), that the points which Aristotle alludes to as having been debated and settled in exoteric discourses, were too abstruse and subtle to have been much handled by cultivated men out of the schools, or (as he expresses it) in the *salons* or coffee-houses (or what corresponded thereto) at Athens—this argument seems to me untenable. We know well, from the Topica of Aristotle, that the most abstruse subjects were handled dialectically, in a manner which he called extra-philosophical; and that this was a frequent occupation of active-minded men at Athens. To discuss these matters in the way which he calls *πρὸς δόξαν*, was more frequent than to discuss them *πρὸς ἀλήθειαν*.

Zell remarks (ad Ethica Nikom. i. 13), after referring to the passage in Aristotle's Physica, iv. 10 (to which I ha called attention in a previous note), "q loco, à Buhlio neglecto, *ἐξωτερικοὶ λό* idem significant quod alibi *κοιναὶ δόξ εἰωθότες λόγοι*, vel *τὰ λεγόμενα*: q semper, priusquam suas rationes in d putando proponat, disquirere solet A stoteles. Vide supra, ad cap. viii. 1." find also in Weisse (Translation of a Comment on the Physica of Aristot p. 517) a fair explanation of what A stotle really means by *exoteric*; an planation, however, which Ritter s aside, in my judgment erroneously ((schichte der Philosophie, vol. iii. p. 23

[a] Thus, for example, the passage in Ethica Nikom. i. 13, p. 1102, a. 26. *λέ ται δὲ περὶ αὐτῶν καὶ ἐν τοῖς ἐξωτερι λόγοις ἀρκούντως ἔνια, καὶ χρηστέον αὐτ* is explained in the Paraphrase of Pseudo-Andronikus as referring to colloquy of Aristotle himself with pu or interlocutors; and this *may* possi be a correct explanation.

as akroamatic (or non-exoteric) must probably have contained a certain admixture of "exoteric discourse"; as the Physica (Φυσικὴ Ἀκρόασις) and the Metaphysica are seen to contain now. The distinction indicated by Cicero would thus be really between one class of works, wherein "exoteric discourse" was exclusive or paramount,—and another, in which it was partially introduced, subordinate to some specified didactic purpose.[a] To this last class belong all the works of Aristotle that we possess at present. Cicero would have found none of them corresponding to his notion of an exoteric book.

To understand fully the extent comprehended by the word *exoteric*, we must recollect that its direct and immediate meaning is negative—*extraneous to philosophy*, and suitable to an audience not specially taught or prepared for philosophy. Now this negative characteristic belongs not merely to dialectic (as we see it in the example above cited from the Aristotelian Physica), but also to rhetoric or rhetorical argument. We know that, in Aristotle's mind, the rhetorical handling and the dialectical handling, are placed both of them under the same head, as dealing with opinions rather than with truth.[b] Both the one

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[a] To this extent I go along with the opinion expressed by Weisse in his translation of the Physica of Aristotle, p. 517: "Dass dieser Gegensatz kein absoluter von zwei durchaus getrennten Bücherclassen ist, sondern dass ein und dasselbe Werk zugleich *exoterisch* und *esoterisch* sein konnte; und zweitens, dass *exoterisch* überhaupt dasjenige heisst, was nicht in den positiv-dogmatischen Zusammenhang der Lehre des Philosophen unmittelbar als Glied eintritt." But Weisse goes on afterwards to give a different opinion (about the meaning of *exoteric* books), conformable to what I have cited in a previous note from Sepulveda; and in that I do not concur. However, he remarks that the manner in which Aristotle handles the Abstracta, *Place* and *Infinite*, is just the same as that which he declares to be *exoteric* in the case of *Time*. The distinction drawn by Aulus Gellius (xx. 5), is not accurate: "'Ἐξωτερικὰ dicebantur, quæ ad rhetoricas meditationes, facultatem argutiarum, civiliumque rerum notitiam conducebant. Ἀκροατικὰ autem vocabantur, in quibus philosophia remotior subtiliorque agitabatur; quæque ad naturæ contemplationes, disceptationesque dialecticas pertinebant." It appears to me that *disceptationes dialecticæ* ought to be transferred to the department ἐξωτερικά, and that *civilium rerum notitia* belongs as much to ἀκροατικὰ as to ἐξωτερικά. M. Ravaisson has discussed this question very ably and instructively, Essai sur la Métaphysique d'Aristote, pp. 224-244. He professes indeed to defend the opinion which I have cited from Sepulveda, and which I think erroneous; but his reasonings go really to the support of the opinion given in my text. He remarks, justly, that the dialogues of Plato (at least all the dialogues of Search) are specimens of exoteric handling; of which attribute Forchhammer speaks as if it were peculiar to the Charmides (Aristot. Exot. Reden. p. 22). Brandis (Aristoteles, p. 105) thinks that when Aristotle says in the Politica, vii. 1, p. 1323, a. 21: νομίσαντας οὖν ἱκανῶς πολλὰ λέγεσθαι καὶ τῶν ἐν τοῖς ἐξωτερικοῖς λόγοις περὶ τῆς ἀρίστης ζωῆς, καὶ νῦν χρηστέον αὐτοῖς, he intends to designate the Ethica. It may be so; yet the Politica seems a continuation of the Ethica: moreover, even in the Ethica, we find reference made to previous discussions, ἐν τοῖς ἐξωτερικοῖς λόγοις (Eth. N. I. 13).

[b] See the first two chapters of Aristotle's Rhetorica, especially pp. 1355 a. 24-35 1358 a. 5, 11, 25, also p. 1404 a. 1.: ὅλως οὔσης πρὸς δόξαν τῆς πραγματείας τῆς περὶ τὴν ῥητορικήν, which is exactly what he says also about Dialectic, in the commencement of the Topica.

and the other are parted off from the didactic or demonstrative march which leads to philosophical truth; though dialectic has a distant affinity with that march, and is indeed available as an auxiliary skirmisher. The term *exoteric* will thus comprehend both rhetorical argument and dialectical argument.[a] Of the latter, we have just seen a specimen extracted from the Physica; of the former, I know no specimen remaining, but there probably were many of them in the Aristotelian dialogues now lost—that which was called 'Eudemus,' and others. With these dialogues Cicero was probably more familiar than with any other composition of Aristotle. I think it highly probable that Aristotle alludes to the dialogues in some of the passages where he refers to "exoteric discourses." To that extent I agree with Bernays; but I see no reason to believe (as he does) that the case is the same with all the passages, or that the epithet is to be understood *always* as implying one of these lost Aristotelian dialogues.[b]

There grew up, in the minds of some commentators, a supposition of "exoteric doctrine" as denoting what Aristotle promulgated to the public, contrasted with another secret or mystic doctrine reserved for a special few, and denoted by the term *esoteric;* though this term is not found in use before the days of Lucian.[c] I believe the supposition of a double doctrine to be mistaken in regard to Aristotle; but it is true as to the Pythagoreans, and is not without some colour of truth even as to Plato. That Aristotle employed one manner of explanation and illustration, when discussing with advanced pupils, and another, more or less different, when addressing an unprepared audience, we may hold as certain and even unavoidable; but this does not amount to a double positive doctrine. Properly

[a] Octavianus Ferrarius observes, in his treatise De Sermonibus Exotericis (Venet. 1575), p. 24: "Quod si Dialecticus et Rhetor inter se mutant, ut aiunt, ita ut Dialecticus Rhetorem et Rhetor Dialecticum vicissim induat—de his ipsis veteribus Dialecticis minime nobis dubitandum est, quin iidem dialectice simul et rhetorice loqui in utramque partem potuerint. Nec valde mirum debet hoc videri; libros enim exotericos prope solos habuerunt: qui cum scripti essent (ut posterius planum faciam) dialectico more, illorum lectio cum libris peperit philosophos congruentes"—Ferrari adverts well to the distinction between the philosopher and the dialectician (*sensu Aristotelico*), handling often the same subjects, but in a different way: between the οἰκεῖαι ἀρχαί, upon which didactic method rested, and the δόξαι, or diverse opinions, each countenanced by more or less authority, from which dialectic took its departure (pp. 8, 86, 89).

[b] I agree very much with the manner in which Bernays puts his case, pp. 7, 80, 92, 93: though there is a contradiction between p. 80 and p. 92, in respect to the taste and aptitude of the exterior public for dialectic debate; which is affirmed in the former page, denied in the latter. But the doctrine asserted in the pages just indicated amounts only to this—that the dialogues were *included* in Aristotle's phrase, ἐξωτερικοὶ λόγοι; which appears to me true.

[c] Luc. Vit. Auct. 26.

speaking, indeed, the term "exoteric" (as I have just explained it out of Aristotle himself) does not designate, or even imply, any positive doctrine at all. It denotes a many-sided controversial debate, in which numerous points are canvassed and few settled; the express purpose being to bring into full daylight the perplexing aspects of each. There are indeed a few exceptional cases, in which "exoteric discourse" will itself have thrown up a tolerably trustworthy result: these few (as I have above shown) Aristotle occasionally singles out and appeals to. But as a general rule, there is no *doctrine* which can properly be called *exoteric:* the "exoteric discourse" suggests many new puzzles, but terminates without any solution at all. The doctrine, whenever any such is proved, emerges out of the didactic process which follows.

CHAPTER III.

CATEGORIÆ.

Of the prodigious total of works composed by Aristotle, I have already mentioned that the larger number have perished. But there still remain about forty treatises, of authenticity not open to any reasonable suspicion, which attest the grandeur of his intelligence, in respect of speculative force, positive as well as negative, systematizing patience, comprehensive curiosity as to matters of fact, and diversified applications of detail. In taking account of these treatises, we perceive some in which the order of sequence is determined by assignable reasons; as regards others, no similar grounds of preference appear. The works called 1. De Cœlo; 2. De Generatione et Corruptione 3. Meteorologica,—are marked out as intended to be studied in immediate succession, and the various Zoological treatises after them. The cluster entitled Parva Naturalia is complementary to the treatise De Animâ. The Physica Auscultatio is referred to in the Metaphysica, and discusses many questions identical or analogous, standing in the relation of prior to a posterior, as the titles indicate; though the title 'Metaphysica' is not affixed or recognized by Aristotle himself, and the treatise so called includes much that goes beyond the reach of the Physica. As to the treatises on Logic, Rhetoric, Ethics, Politics, Poetics, Mechanics, &c., we are left to fix for ourselves the most convenient order of study. Of no one among them can we assign the date of composition or publication. There are indeed in the Rhetorica, Politica, and Meteorologica, various allusions which must have been written later than some given events of known date; but these allusions may have been later additions and cannot be considered as conclusively proving, though they certainly raise a presumption, that the entire work was written subsequently to those events.

The proper order in which the works of Aristotle ought to be studied (like the order proper for studying the Platonic dialogues),[a] was matter of debate from the time of his earliest

[a] Scholia, p. 25, b. 37, seq. Br.; p. 321, b. 30; Diogen. L. iii. 62. The order in which the forty-six Aristotelian treatises stand printed in the Berlin edition, an

editors and commentators, in the century immediately preceding the Christian era. Boêthus the Sidonian (Strabo's contemporary and fellow-student) recommended that the works on natural philosophy and physiology should be perused first; contending that these were the easiest, the most interesting, and, on the whole, the most successful among all the Aristotelian productions. Some Platonists advised that the ethical treatises should be put in the front rank, on the ground of their superior importance for correcting bad habits and character; others assigned the first place to the mathematics, as exhibiting superior firmness in the demonstrations. But Andronikus himself, the earliest known editor of Aristotle's works, arranged them in a different order, placing the logical treatises at the commencement of his edition. He considered these treatises, taken collectively, to be not so much a part of philosophy as an *Organon* or instrument, the use of which must be acquired by the reader before he became competent to grasp or comprehend philosophy; as an exposition of method rather than of doctrine.[a] From the

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in other preceding editions, corresponds to the tripartite division, set forth by Aristotle himself, of sciences or cognitions generally: 1. Theoretical; θεωρητικαί. 2. Practical; πρακτικαί. 3. Constructive or Technical; ποιητικαί.

Patricius, in his Discussiones Peripateticæ, published in 1581 (tom. i. lib. xiii. p. 173), proclaims himself to be the first author who will undertake to give an account of Aristotle's philosophy *from Aristotle himself* (instead of taking it, as others before him had done, from the Aristotelian expositors, Andronikus, Alexander, Porphyry, or Averroes); likewise, to be the first author who will consult *all* the works of Aristotle, instead of confining himself, as his predecessors had done, to a select few of the works. Patricius then proceeds to enumerate those works upon which alone the professors "in Italicis scholis" lectured, and to which the attention of all readers was restricted. 1. The Predicabilia, or Eisagoge of Porphyry. 2. The Categoriæ. 3. The De Interpretatione. 4. The Analytica Priora; but only the four first chapters of the first book. 5. The Analytica Posteriora; but only a few chapters of the first book; nothing of the second. 6. The Physica; books first and second; then parts of the third and fourth; lastly, the eighth book. 7. The De Cœlo; books first and second. 8. The De Generatione et Corruptione; books first and second. 9. The De Animâ; all the three books. 10. The Metaphysica; books Alpha major, Alpha minor, third, sixth, and eleventh. "Idque, quadriennio integro, quadruplicis ordinis Philosophi perlegunt auditoribus. De reliquis omnibus tot libris, mirum silentium."

Patricius expressly remarks that neither the Topica nor the De Sophisticis Elenchis was touched in this full course of four years. But he does not remark—what to a modern reader will seem more surprising—that neither the Ethica, nor the Politica, nor the Rhetorica, is included in the course.

[a] Aristot. Topica, i. p. 104, b. 1, with the Scholia of Alexander, p. 259, a. 48 Br.; Scholia ad Analyt. Prior. p. 140, a. 47, p. 141, a. 25; also Schol. ad Categor. p. 36, a., p. 40, a., 8. This conception of the Organon is not explicitly announced by Aristotle, but seems quite in harmony with his views. The contemptuous terms in which Prantl speaks of it (Gesch. der Logik, i. 136), as a silly innovation of the Stoics, are unwarranted.

Aristotle (Metaph. E. i. p. 1025, b. 26) classifies the sciences as θεωρητικαί, πρακτικαί, ποιητικαί; next he subdivides the first of the three into φυσική, μαθηματική, πρώτη φιλοσοφία. Brentano, after remarking that no place in this distribution is expressly provided for Logic, explains the omission as follows: "Diese auffallende Erscheinung erklärt sich daraus, dass diese [the three above-named theoretical sciences] allein das reelle Sein betrachten, und nach den drei Graden der Abstraktion in ihrer Betrachtungsweise

time of Andronikus downward, the logical treatises have alway stood first among the written or printed works of Aristotle They have been known under the collective title of the 'Organon, and as such it will be convenient still to regard them.[a]

These treatises are six in number:—1. Categoriæ;[b] 2. D Interpretatione, or De Enunciatione; 3. Analytica Priora 4. Analytica Posteriora; 5. Topica; 6. De Sophisticis Elenchis This last short treatise—De Sophisticis Elenchis—belong naturally to the Topica which precedes it, and of which it ough to be ranked as the ninth or concluding book. Waitz has printe it as such in his edition of the Organon; but as it has bee generally known with a separate place and title, I shall no depart from the received understanding.

Aristotle himself does not announce these six treatises a forming a distinct aggregate, nor as belonging to one and th same department, nor as bearing one comprehensive name. W find indeed in the Topica references to the Analytica, and in th Analytica references to the Topica. In both of them, the te Categories are assumed and presupposed, though the treatis describing them is not expressly mentioned: to both also, th contents of the treatise De Interpretatione or Enunciatione though it is not named, are indispensable. The affinity an interdependence of the six is evident, and justifies the practic of the commentators in treating them as belonging to one an the same department. To that department there belonged als several other treatises of Aristotle, not now preserved, but speci fied in the catalogue of his lost works; and these his disciple Theophrastus, Eudemus, and Phanias, had before them. As al these three disciples composed treatises of their own on the sam or similar topics,[c] amplifying, elucidating, or controverting th

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verschieden, geschieden werden; während die Logik das bloss rationelle Sein, das ὂν ὡς ἀληθές, behandelt." (Ueber die Bedeutung des Seienden nach Aristoteles, p. 39.)—Investigations περὶ τῆς ἀληθείας, ὃν τρόπον δεῖ ἀποδέχεσθαι are considered by Aristotle as belonging to τὰ Ἀναλυτικά; enquiries into method in the first instance, and into doctrine chiefly with a view to method (Metaphys. Γ. p. 1005, b. 2). In Metaphys. Γ. p. 1005, b. 7, he declares that these enquiries into method, or analysis of the *principia* of syllogistic reasoning, belong to the Philosophia Prima (compare Metaphys. Z. 12, p. 1037, b. 8). Schwegler in his Commentary (p. 161) remarks that this is one of the few passages in which Aristotle indicates the relation in which Logic stands to Metaphysics, or First Philosophy. The que tion has been started among his Ἀπορία Metaph. B. 2, p. 999, b. 30.

[a] Respecting the title of Organo which was sometimes applied to th Analytica Posteriora only, see Waitz a Organ. ii. p. 294.

[b] Some eminent critics, Prantl an Bonitz among them, consider the treatis Categoriæ not to be the work of Aristotl The arguments on which this opinio rests are not convincing to me; and eve if they were, the treatise could not be le out of consideration, since the *doctri* of the Ten Categories is indisputabl Aristotelian. See Zeller, Die Phil. d Griech. ii. 2, pp. 50, 51, 2nd ed.

[c] Ammonius ap. Schol. p. 28, a. 41 p. 33, b. 27, Br.

views of their master, the Peripatetics immediately succeeding them must have possessed a copious logical literature, in which the six treatises now constituting the Organon appeared as portions, but not as a special aggregate in themselves.

Of the two treatises which stand first in the Aristotelian Organon—the Categoriæ and the De Interpretatione—each forms in a certain sense the complement of the other. The treatise De Interpretatione handles Propositions (combinations of terms in the way of Subject and Predicate), with prominent reference to the specific attribute of a Proposition—the being true or false, the object of belief or disbelief; the treatise Categoriæ deals with these same Terms (to use Aristotle's own phrase) pronounced without or apart from such combination. In his definition of the simple Term, the Proposition is at the same time assumed to be foreknown as the correlate or antithesis to it.[a]

The first distinction pointed out by Aristotle among simple, uncombined Terms, or the things denoted thereby, is the Homonymous, the Synonymous, and the Paronymous. *Homonymous* are those which are called by the same name, used in a different sense or with a different definition or rational explanation. *Synonymous* are those called by the same name in the same sense. *Paronymous* are those called by two names, of which the one is derived from the other by varying the inflexion or termination.[b]

We can hardly doubt that it was Aristotle who first gave this peculiar distinctive meaning to the two words Homonymous and Synonymous, rendered in modern phraseology (through the Latin) *Equivocal* and *Univocal*. Before his time this important distinction between different terms had no technical name to designate it. The service rendered to Logic by introducing such a technical term, and by calling attention to the lax mode of speaking which it indicated, was great. In every branch of his

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[a] *Τὰ ἄνευ συμπλοκῆς λεγόμενα—τῶν κατὰ μηδεμίαν συμπλοκὴν λεγομένων* Categ. p. 1, a. 16, b. 25). See Schol. ad Aristot. Physica, p. 323, b. 25, Br.; and Bonitz ad Aristotel. Metaph. (A. p. 987) p. 90.

The Categories of Aristotle appear to have formed one of the most prominent topics of the teaching of Themistius: rebutting the charge, advanced both against himself, and, in earlier days, against Sokrates and the Sophists, of rendering his pupils presumptuous and conceited, he asks, *ἠκούσατε δὲ αὖ τινος τῶν ἐμῶν ἐπιτηδείων ὑψηλογουμένου καὶ βρενθυομένου ἐπὶ τοῖς συνωνύμοις ἢ ὁμωνύμοις ἢ παρωνύμοις*; (Orat. xxiii. p. 351.)

Reference is made (in the Scholia on the Categoriæ, p. 43, b. 19) to a classification of names made by Speusippus, which must have been at least as early as that of Aristotle; perhaps earlier, since Speusippus died in 339 B.C. We do not hear enough of this to understand clearly what it was. Boëthus remarked that Aristotle had omitted to notice some distinctions drawn by Speusippus on this matter, Schol. p. 43, a. 29. Compare a remark in Aristot. De Cœlo, i. p. 280, b. 2.

[b] Aristot. Categor. p. 1, a. 1-15.

writings Aristotle perpetually reverts to it, applying it to ne cases, and especially to those familiar universal words uttere most freely and frequently, under the common persuasion tha their meaning is not only thoroughly known but constant an uniform. As a general fact, students are now well acquainte with this source of error, though the stream of particular erroi flowing from it is still abundant, ever renewed and diversifie But in the time of Aristotle the source itself had never yet bee pointed out emphatically to notice, nor signalized by any cha racteristic term as by a beacon. The natural bias which lead us to suppose that one term always carries one and the sam meaning, was not counteracted by any systematic warning (generalized expression. Sokrates and Plato did indeed expo many particular examples of undefined and equivocal phras ology. No part of the Platonic writings is more valuable tha the dialogues in which this operation is performed, forcing tl respondent to feel how imperfectly he understands the phras constantly in use. But it is rarely Plato's practice to furnis generalized positive warnings or systematic distinctions. H has no general term corresponding to homonymous or equivoca and there are even passages where (under the name of Prodiku he derides or disparages a careful distinctive analysis of differe significations of the same name. To recognize a class of equ vocal terms and assign thereto a special class-name, was important step in logical procedure; and that step, among many others, was made by Aristotle.[a]

Though Aristotle has professed to distinguish between terr implicated in predication, and terms not so implicated,[b] y

[a] In the instructive commentary of Dexippus on the Categoriæ (contained in a supposed dialogue between Dexippus and his pupil Seleukus, of which all that remains has been recently published by Spengel, Munich, 1859), that commentator defends Aristotle against some critics who wondered why he began with these Ante-predicaments (ὁμώνυμα, συνώνυμα, &c.), instead of proceeding at once to the Predicaments or Categories themselves. Dexippus remarks that without understanding this distinction between *equivoca* and *univoca*, the Categories themselves could not be properly appreciated; for Ens—τὸ ὂν—is homonymous in reference to all the Categories, and not a Summum Genus, comprehending the Categories as distinct species under it; while each Category is a Genus in reference to its particulars. Moreover, Dexippus observes that this distinction of homonyms and synonyms was altogether unknown a never self-suggested to the ordinary m (ὅσων γὰρ ἔννοιαν οὐκ ἔχομεν, τούτων π ληψιν οὐκ ἔχομεν, p. 20), and therefore quired to be brought out first of all at beginning; whereas the Post-predicame (to which we shall come later on) w postponed to the end, because they w cases of familiar terms loosely employ (See Spengel, Dexipp. pp. 19, 20, 21.)

[b] Aristot. Categor. p. 1, a. 16. τῶν γομένων τὰ μὲν κατὰ συμπλοκὴν λέγε τὰ δ' ἄνευ συμπλοκῆς· τὰ μὲν οὖν κ συμπλοκὴν οἷον ἄνθρωπος τρέχει, ἄνθρω νικᾷ· τὰ δ' ἄνευ συμπλοκῆς οἷον ἄνθρω βοῦς, τρέχει, νικᾷ.

It will be seen that the meaning function of the single word can only explained relatively to the complete position, which must be assumed as known.

That which Aristotle discriminate

when he comes to explain the functions of the latter class, he considers them in reference to their functions as constituent members of propositions. He immediately begins by distinguishing four sorts of matters (*Entia*): That which is affirmable of a Subject, but is not in a Subject; That which is in a Subject, but is not affirmable of a Subject; That which is both in a Subject, and affirmable of a Subject; That which is neither in a Subject, nor affirmable of a Subject.[a]

This fundamental quadruple distinction of *Entia*, which serves as an introduction to the ten Categories or Predicaments, belongs to words altogether according to their relative places or functions in the proposition; the meanings of the words being classified accordingly. That the learner may understand it, he ought properly to be master of the first part of the treatise De Interpretatione, wherein the constituent elements of a proposition are explained: so intimate is the connection between that treatise and this.

The classification applies to *Entia* (Things or Matters) universally, and is thus a first step in Ontology. He here looks at Ontology in one of its several diverse aspects—as it enters into predication, and furnishes the material for Subjects and Predicates, the constituent members of a proposition.

Ontology, or the Science of *Ens quatenus Ens*, occupies an important place in Aristotle's scientific programme; bearing usually the title of First Philosophy, sometimes Theology, though never (in his works) the more modern title of Metaphysica. He describes it as the universal and comprehensive Science, to which all other sciences are related as parts or fractions. Ontology deals with *Ens* in its widest sense, as an *Unum* not generic but analogical—distinguishing the derivative varieties into which it may be distributed, and setting out the attributes and accompaniments of *Essentia* universally; while other sciences, such as Geometry, Astronomy, &c., confine themselves to distinct branches of that whole;[b] each having its own separate class of *Entia* for special and exclusive study. This is the characteristic distinction of Ontology, as Aristotle conceives it; he does not set it in antithesis to Phenomenology, according to

this treatise, in the phrases—λέγεσθαι κατὰ συμπλοκὴν and λέγεσθαι ἄνευ συμπλοκῆς, is equivalent to what we read in the De Interpretatione (p. 16, b. 27, p. 17, a. 17) differently expressed, φωνὴ σημαντικὴ ὡς κατάφασις and φωνὴ σημαντικὴ ὡς φάσις.

[a] Aristot. Categor. p. 1, a. 20.

[b] Aristot. Metaphys. Γ. p. 1003, a. 21, 25-33, E. p. 1025, b. 8. ἔστιν ἐπιστήμη τις ἣ θεωρεῖ τὸ ὂν ᾗ ὂν καὶ τὰ τούτῳ ὑπάρχοντα καθ' αὑτό· αὕτη δ' ἐστὶν οὐδεμιᾷ τῶν ἐν μέρει λεγομένων ἡ αὐτή· οὐδεμία γὰρ τῶν ἄλλων ἐπισκοπεῖ καθόλου περὶ τοῦ ὄντος ᾗ ὄν, ἀλλὰ μέρος αὐτοῦ τι ἀποτεμόμεναι περὶ τούτου θεωροῦσι τὸ συμβεβηκός, &c. Compare p. 1005, a. 2-14.

the distinction that has become current among modern metaphy sicians.

Now *Ens* (or *Entia*), in the doctrine of Aristotle, is not synonymous or univocal word, but an homonymous or equivoc word; or, rather, it is something between the two, being equ vocal, with a certain qualification. Though not a *Summu Genus, i.e.* not manifesting throughout all its particulars generi unity, nor divisible into species by the addition of well-marke essential *differentiæ*, it is an analogical aggregate, or a *Summu Analogon*, comprehending under it many subordinates whic bear the same name from being all related in some way or oth to a common root or *fundamentum*, the relationship being bot diverse in kind and nearer or more distant in degree. The wo *Ens* is thus homonymous, yet in a qualified sense. While it not univocal, it is at the same time not absolutely equivoc It is *multivocal* (if we may coin such a word), having ma meanings held together by a multifarious and graduated relatio ship to one common *fundamentum*.[a] *Ens* (or *Entia*), in th widest sense, is the theme of Ontology or First Philosophy, a is looked at by Aristotle in four different principal aspects.[b]

1. Τὸ ὂν κατὰ συμβεβηκός—*Ens per Accidens*—*Ens* accident or rather concomitant, either as rare and exceptional attribu to a subject, or along with some other accident in the sa common subject.

2. Τὸ ὂν ὡς ἀληθές, καὶ τὸ μὴ ὂν ὡς ψεῦδος—*Ens*, in the sen of Truth, *Non-Ens*, in the sense of Falsehood. This is the *E* of the Proposition; a true affirmation or denial falls under *E* in this mode, when the mental conjunction of terms agrees wi reality; a false affirmation or denial, where no such agreeme exists, falls under *Non-Ens*.[c]

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[a] Simplikius speaks of these Analoga as τὸ μέσον τῶν τε συνωνύμων καὶ τῶν ὁμωνύμων, τὸ ἀφ' ἑνός, &c. Schol. ad Categor. p. 69, b. 29, Brand. See also Metaphys. Z. p. 1030, a. 34.

Dexippus does not recognize, formally and under a distinct title, this intermediate stage between συνώνυμα and ὁμώνυμα. He states that Aristotle considered Ens as ὁμώνυμον, while other philosophers considered it as συνώνυμον (Dexippus, p. 26, book i. sect. 19, ed. Spengel). But he intimates that the ten general heads called Categories have a certain continuity and interdependence (συνέχειαν καὶ ἀλληλουχίαν) each with the others, branching out from οὐσία in ramifications more or less straggling (p. 48, book ii. sects. 1, 2, Spengel). The list (he says, p. 47) does not depend upon διαίρ (generic division), nor yet is it sim enumeration (ἀπαρίθμησις) of incohe items. In the Physica, vii. 4, p. 24 23, Aristotle observes: εἰσὶ δὲ τῶν ὁμ μιῶν αἱ μὲν πολὺ ἀπέχουσαι αἱ δὲ ἔχου τινα ὁμοιότητα, αἱ δ' ἐγγὺς ἢ γένει ἢ λογίᾳ, διὸ οὐ δοκοῦσιν ὁμωνυμίαι ε οὖσαι.

[b] Aristot. Metaphys. Δ. p. 1017, E. p. 1025, a. 34, p. 1026, a. 33, b upon which last passage see the not Bonitz.

[c] Aristot. Metaph. E. 4, p. 1027, b. —p. 1028, a. 4. οὐ γάρ ἐστι τὸ ψε καὶ τὸ ἀληθὲς ἐν τοῖς πράγμασιν—ἀλλ διανοίᾳ—οὐκ ἔξω δηλοῦσιν οὖσάν τινα φ τοῦ ὄντος. Also Θ. 10, p. 1051, b. 1 κυριώτατα ὂν ἀληθὲς καὶ ψεῦδος. I

3. Τὸ ὂν δυνάμει καὶ τὸ ὂν ἐνεργείᾳ—*Ens*, potential, actual.

4. Τὸ ὂν κατὰ τὰ σχήματα τῶν κατηγοριῶν—*Ens*, according to the ten varieties of the Categories, to be presently explained.

These four are the principal aspects under which Aristotle looks at the aggregate comprised by the equivocal or multivocal word *Entia*. In all the four branches, the varieties comprised are not species under a common genus, correlating, either as co-ordinate or subordinate, one to the other; they are *analoga*, all having relationship with a common term, but having no other necessary relationship with each other. Aristotle does not mean that these four modes of distributing this vast aggregate, are the only modes possible; for he himself sometimes alludes to other modes of distributions.[a] Nor would he maintain that the four distributions were completely distinguished from each other, so that the same subordinate fractions are not comprehended in any two; for on the contrary, the branches overlap each other and coincide to a great degree, especially the first and fourth. But he considers the four as discriminating certain distinct aspects of *Entia* or *Entitas*, more important than any other aspects thereof that could be pointed out, and as affording thus the best basis and commencement for the Science called Ontology.

Of these four heads, however, the first and second are rapidly dismissed by Aristotle in the Metaphysica,[b] being conceived as having little reference to real essence, and therefore belonging more to Logic than to Ontology; *i.e.* to the subjective processes of naming, predicating, believing, and inferring rather than to the objective world of Perceivables and Cogitables.[c] It is the

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Scholion, Alexander remarks: τὸ δὲ ὡς ἀληθῶς ὂν πάθος ἐστὶ καὶ βούλημα διανοίας, τὸ δὲ ζητεῖν τὸ ἑκάστῳ δοκοῦν οὐ σφόδρα ἀναγκαῖον.

[a] Aristot. Metaph. Γ. p. 1003, a. 33,-b. 10. Compare the able treatise of Brentano, "Ueber die Bedeutung des Seienden nach Aristoteles," pp. 6, 7.

[b] Aristot. Metaph. E. p. 1027, b. 16, p. 1028, a. 6.

[c] Aristot. Metaph. Θ. 10, p. 1051, b. 2-15; with Schwegler's Comment, p. 186. This is the distinction drawn by Simplikius (Schol. ad Categ. p. 76, b. 47) between the Organon and the Metaphysica: Αἱ γὰρ ἀρχαὶ κατὰ μὲν τὴν σημαντικὴν αὐτῶν λέξιν ἐν τῇ λογικῇ πραγματείᾳ δηλοῦνται, κατὰ δὲ τὰ σημαινόμενα ἐν τῇ Μετὰ τὰ Φυσικὰ οἰκείως.

Τὰ ὄντα are equivalent to τὰ λεγόμενα, in this and the other logical treatises of Aristotle. Categ. p. 1, a. 16-20, b. 25; Analyt. Prior. i. p. 43, a. 25.

This is the logical aspect of Ontology; that is, Entia are considered as Objects to be named, and to serve as Subjects or Predicates for propositions: every such term having a fixed denotation, and (with the exception of proper names) a fixed connotation, known to speakers and hearers.

Τὰ λεγόμενα (or Entia considered in this aspect) are distinguished by Aristotle into two classes: 1. Τὰ λεγόμενα κατὰ συμπλοκήν, οἷον ἄνθρωπος τρέχει, ἄνθρωπος νικᾷ. 2. Τὰ λεγόμενα ἄνευ συμπλοκῆς (or κατὰ μηδεμίαν συμπλοκήν), οἷον ἄνθρωπος, βοῦς, τρέχει, νικᾷ.

We are to observe here, that in Logic the Proposition or Enunciation is the Prius Naturâ, which must be presupposed as known before we can understand what the separate terms are (Analytic. Prior. i. p. 24, a. 16): just as the right angle must

third and fourth that are treated in the Metaphysica; while i is the fourth only (*Ens* according to the ten figures of th Categories) which is set forth and elucidated in this first treatis of the Organon, where Aristotle appears to blend Logic an Ontology into one.

Of this mixed character, partly logical, partly ontological, i the first distinction set forth in the Categoriæ—the distinctio between matters *predicated of* a Subject, and matters which ar *in* a Subject—the Subject itself being assumed as the *funda mentum* correlative to both of them. The definition given c that which is *in* a Subject is ontological: viz., "*In* a Subjec I call that which is in anything, not as a part, yet so that i cannot exist separately from that in which it is."[a] By thes two negative characteristics, without any mark positive, doe Aristotle define what is meant by being *in* a Subject. Moder logicians, and Hobbes among them, can find no better definitio for an Accident; though Hobbes remarks truly, that Acciden cannot be properly defined, but must be elucidated by examples

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be understood before we can explain what is an acute or an obtuse angle (to use an illustration of Aristotle; see Metaphys. Z. p. 1035, b. 7). We must understand the entire logical act, called Affirming or Denying, before we can understand the functions of the two factors or correlates with which that act is performed. Aristotle defines the Term by means of the Proposition, ὅρον δὲ καλῶ εἰς ὃν διαλύεται ἡ πρότασις (Anal. Pr. i. 24, b. 16).

Τὰ λεγόμενα, as here used by Aristotle, coincides in meaning with what the Stoics afterwards called Τὰ λεκτά—of two classes: 1. λεκτὰ αὐτοτελῆ, one branch of which, τὰ ἀξιώματα, are equivalent to the Aristotelian τὰ κατὰ συμπλοκὴν λεγόμενα. 2. λεκτὰ ἐλλιπῆ, equivalent to τὰ ἄνευ συμπλοκῆς λεγόμενα (Diogen. Laert. vii. 43, 44, 63, 64; Sext. Emp. adv. Mathemat. viii. 69, 70, 74): equivalent also, seemingly, to τὰ διανοητὰ in Aristotle: ὁ διανοητὸς Ἀριστομένης (Anal. Pr. I. p. 47, b. 22).

Hobbes observes (Computation or Logic, part i. 2, 5): "Nor is it at all necessary that every name should be the name of something. For as these, *a man*, *a tree*, *a stone*, are the names of the things themselves, so the images of a man, of a tree, of a stone, which are represented to men sleeping, have their names also, though they be not things, but only fictions and phantasms of things. For we can remember these; and therefore it is no less necessary that they have names to mark and signify them, than tl things themselves. Also this word *futu* is a name; but no future thing has y any being. Moreover, that which neith is, nor has been, nor ever shall or ev can be, has a name—*impossible*. To co clude, this word *nothing* is a name, whi yet cannot be name of any thing; f when we subtract two and three fro five, and, so nothing remaining, we wou call that subtraction to mind, this spee *nothing remains*, and in it the wo *nothing*, is not unuseful. And for tl same reason we say truly, *less than nothi* remains, when we subtract more fr less; for the mind feigns such remai as these for doctrine's sake, and desir as often as is necessary, to call the sa to memory. But seeing every name h some relation to that which is name though that which we name be not alwa a thing that has a being in nature, yet is lawful for doctrine's sake to apply t word *thing* to whatsoever we name; as it were all one whether that thing truly existent, or be only feigned."

The Greek neuter gender (τὸ λεγόμει or τὸ λεκτόν, τὰ λεγόμενα or τὰ λεκτ covers all that Hobbes here incluc under the word *thing*.—Scholia ad A stot. Physic. I. i. p. 323, a. 21, Bran ὀνομάζονται μὲν καὶ τὰ μὴ ὄντα, ὁρίζον δὲ μόνα τὰ ὄντα.

[a] Aristot. Categ. p. 1, a. 24.

[b] Hobbes, Computation or Logic, p i. 3, 3, i. 6, 2, ii. 8, 2-3.

The distinction here drawn by Aristotle between being *predicated of* a Subject, and being *in* a Subject, coincides with that between essential and non-essential predication: all the predicates (including the *differentia*) which belong to the essence, fall under the first division;[a] all those which do not belong to the essence, under the latter. The Subjects—what Aristotle calls the First Essences or Substances, those which are essences or substances in the fullest and strictest meaning of the word—are concrete individual things or persons; such as Sokrates, this man, that horse or tree. These are never employed as predicates at all (except by a distorted and unnatural structure of the proposition, which Aristotle indicates as possible, but declines to take into account); they are always Subjects of different predicates, and are, in the last analysis, the Subjects of all predicates. But besides these First Essences, there are also Second Essences—Species and Genus, which stand to the first Essence in the relation of predicates to a Subject, and to the other Categories in the relation of Subjects to predicates.[b] These Second Essences are less of Essences than the First, which alone is an Essence in the fullest and most appropriate sense. Among the Second Essences, Species is more of an Essence than Genus, because it belongs more closely and specially to the First Essence; while Genus is farther removed from it. Aristotle thus recognizes a graduation of *more or less* in Essence; the individual is more Essence, or more complete as an Essence, than the Species, the Species more than the Genus. As he recognizes a First Essence, *i.e.* an individual object (such as Sokrates, this horse, &c.), so he also recognizes an individual accident (this particular white colour, that particular grammatical knowledge) which is *in* a Subject, but is not *predicated of* a Subject; this particular white colour exists *in* some given body, but is not *predicable of* any body.[c]

Respecting the logical distinction, which Aristotle places in

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[a] Aristot. Categ. p. 3, a. 20. It appears that Andronikus did not draw the line between those two classes of predicates in the same manner as Aristotle: he included many non-essential predicates in *τὰ καθ' ὑποκειμένου*. See Simplikius, ad Categorias, Basil. 1551, fol. 13, 21, B. Nor was either Alexander or Porphyry careful to observe the distinction between the two classes. See Schol. ad Metaphys. p. 701, b. 23, Br.; Schol. ad De Interpret. p. 106, a. 29, Br. And when Aristotle says, Analyt. Prior. i. p. 24, b. 26, *τὸ δὲ ἐν ὅλῳ εἶναι ἕτερον ἑτέρῳ, καὶ τὸ κατὰ παντὸς κατηγορεῖσθαι θατέρου θάτερον, ταὐτόν ἐστιν*, he seems himself to forget the distinction entirely.

[b] Categor. p. 2, a. 15, seq. In Aristotle phraseology it is not said that Second Essences are contained in First Essences, but that First Essences are contained in Second Essences, *i.e.* in the species which Second Essences signify. See the Scholion to p. 3. a. 9, in Waitz, vol. i. p. 32.

[c] Arist. Categ. p. 1, a. 26; b. 7: *Ἁπλῶς δὲ τὰ ἄτομα καὶ ἓν ἀριθμῷ κατ' οὐδενὸς ὑποκειμένου λέγεται, ἐν ὑποκειμένῳ δὲ ἔνια οὐδὲν κωλύει εἶναι· ἡ γάρ τις γραμματικὴ τῶν ἐν ὑποκειμένῳ ἐστίν.* Aristotle here recognizes an attribute as "individual

the commencement of this treatise on the Categories—between predicates which are *affirmed of* a Subject, and predicates which are *in* a Subject[a]—we may remark that it turns altogether upon the name by which you describe the predicate. Thus he tells us that the Species and Genus (man, animal), and the Differentia (rational), may be *predicated of* Sokrates, but are not *in* Sokrates; while knowledge is *in* Sokrates, but cannot be *predicated of* Sokrates; and may be *predicated of* grammar, but is not *in* grammar. But if we look at this comparison, we shall see that in the last-mentioned example, the predicate is described by an abstract word (knowledge); while in the preceding examples it is described by a concrete word (man, animal, rational).[b] If, in place of these three last words, we substitute the abstract words corresponding to them—humanity, animality, rationality—we shall have to say that these are *in* Sokrates, though they cannot (in their abstract form) be *predicated of* Sokrates, but only in the form of their concrete paronyms, which Aristotle treats as a distinct predication. So if, instead of the abstract word knowledge, we employ the concrete word knowing or wise, we can no longer say that this is *in* Sokrates, and that it may be *predicated of* grammar. Abstract alone can be *predicated of* abstract; concrete alone can be *predicated of* concrete; if we describe the relation between Abstract and Concrete, we must say, The Abstract is *in* the Concrete — the Concrete contains or embodies the Abstract. Indeed we find Aristotle referring the same predicate, when described by the abstract name, to one Category; and when described by the concrete paronymous adjective, to another and different Category.[c] The names Concrete and Abstract were not in the

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and as numerically one;" and various other logicians have followed him. But is it correct to say, that an attribute, when it cannot be farther divided specifically, and is thus the lowest in its own predicamental series, is *Unum Numero?* The attribute may belong to an indefinite number of different objects; and can we count it as *One*, in the same sense in which we count each of these objects as *One?* I doubt whether *Unum Numero* be applicable to attributes. Aristotle declares that the *δευτέρα οὐσία* is not *Unum Numero* like the *πρώτη οὐσία—οὐ γὰρ ἕν ἐστι τὸ ὑποκείμενον ὥσπερ ἡ πρώτη οὐσία, ἀλλὰ κατὰ πολλῶν ὁ ἄνθρωπος λέγεται καὶ τὸ ζῷον* (Categ. p. 3, b. 16). Upon the same principle, I think, he ought to declare that the attribute is not *Unum Numero;* for though it is not (in his language) *predicable of* many Subjects yet it is *in* many Subjects. It canno[t] correctly be called *Unum Numero*, according to the explanation which he gives o[f] that phrase in two passages of the Metaphysica, B. p. 999, b. 33; Δ. p. 1016, b. 32: *ἀριθμῷ μὲν ὧν ἡ ὕλη μία*, &c.

[a] The distinction is expressed by Ammonius (Schol. p. 51, b. 46) as follows:— *αἱ πρῶται οὐσίαι ὑποκεῖνται πᾶσιν, ἀλλ' οὐ ὁμοίως· τοῖς μὲν γὰρ πρὸς ὕπαρξιν, τούτεστι τοῖς συμβεβηκόσιν, τοῖς δὲ πρὸς κατηγορίαν, τούτεστι ταῖς καθόλου οὐσίαις.*

[b] Ueberweg makes a remark similar to this.—System der Logik, sect. 56, note, p. 110, ed. second.

[c] The difference of opinion as to the proper mode of describing the Differentia—whether by the concrete word *πεζὸν*,

philosophical vocabulary of his day. In this passage of the Categoriæ, he establishes a distinction between predicates essential and predicates non-essential; the latter he here declares to be *in* the Subject, the former not to be in it, but to be *co-efficients of* its essence. But we shall find that he does not adhere to this distinction even throughout the present treatise, still less in other works. It seems to be a point of difference between the Categoriæ on one side, and the Physica and Metaphysica on the other, that in the Categoriæ he is more disposed to found supposed real distinctions on verbal etiquette, and on precise adherence to the syntactical structure of a proposition.[a]

Lastly, Aristotle here makes one important observation respecting those predicates which he describes as (not *in* a Subject but) *affirmed* or *denied of* a Subject—*i.e.* the essential predicates. In these (he says) whatever predicate can be truly affirmed or denied of the predicate, the same can be truly affirmed or denied of the Subject.[b] This observation deserves notice, because it is in fact a brief but distinct announcement of his main theory of the Syllogism; which theory he afterwards expands in the Analytica Priora, and traces into its varieties and ramifications.

After such preliminaries, Aristotle proceeds[c] to give the enumeration of his Ten Categories or Predicaments; under one or other of which, every subject or predicate, considered as capable of entering into a proposition, must belong: 1. *Essence* or *Substance;* such as, man, horse. 2. *How much* or *Quantity;* such as, two cubits long, three cubits long. 3. *What manner of* or *Quality;* such as, white, erudite. 4. *Ad aliquid—To something* or *Relation;* such as, double, half, greater. 5. *Where;* such as, in the market-place, in the Lykeium. 6. *When;* such as,

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by the abstract πεζότης—gives occasion to an objection against Aristotle's view, and to a reply from Dexippus not very conclusive (Dexippus, book ii. s. 22, pp. 60, 61, ed. Spengel).

[a] Categor. p. 3, a. 3. In the Physica, iv. p. 210, a. 14-30, Aristotle enumerates nine different senses of the phrase ἔν τινι. His own use of the phrase is not always uniform or consistent. If we compare the Scholia on the Categoriæ, pp. 44, 45, 53, 58, 59, Br., with the Scholia on the Physica, pp. 372, 373, Br., we shall see that the Commentators were somewhat embarrassed by his fluctuation. The doctrine of the Categoriæ was found especially difficult in its application to the Differentia.

In Analyt. Post. i. p. 83, a. 30, Aristotle says, ὅσα δὲ μὴ οὐσίαν σημαίνει, δεῖ κατά τινος ὑποκειμένου κατηγορεῖσθαι, which is at variance with the language of the Categoriæ, as the Scholiast remarks, p. 228, a. 33. The like may be said about Metaphys. B. p. 1001, b. 29; Δ. p. 1017, b. 13. See the Scholia of Alexander, p. 701, b. 25, Br.

See also De Gener. et Corrupt. p. 319, b. 8; Physic. i. p. 185, a. 31: οὐθὲν γὰρ τῶν ἄλλων χωριστόν ἐστι παρὰ τὴν οὐσίαν· πάντα γὰρ καθ' ὑποκειμένου τῆς οὐσίας λέγεται, where Simplikius remarks that the phrase is used ἀντὶ τοῦ ἐν ὑποκειμένῳ (Schol. p. 328, b. 43).

[b] Categor. p. 1, b. 10-15.

[c] Ibid. p. 1, b. 25, seq.

yesterday, last year. 7. *In what posture;* such as, he stands up, he is sitting down. 8. *To have;* such as, to be shod, to be armed. 9. *Activity;* such as, he is cutting, he is burning. 10. *Passivity;* such as, he is being cut, he is being burned.

Ens in its complete state—concrete, individual, determinate—includes an embodiment of all these ten Categories; the First *Ens* being the Subject of which the rest are predicates. Whatever question be asked respecting any individual Subject, the information given in the answer must fall, according to Aristotle, under one or more of these ten general heads; while the ful outfit of the individual will comprise some predicate under eacl of them. Moreover, each of the ten is a *Generalissimum;* havin more or fewer species contained under it, but not being itsel contained under any larger genus (*Ens* not being a genus). S that Aristotle does not attempt to define or describe any one c the ten; his only way of explaining is by citing two or thre illustrative examples of each. Some of the ten are even c wider extent than *Summa Genera;* thus, Quality cannot be cor sidered as a true genus, comprehending generically all the case falling under it. It is a *Summum Analogon,* reaching beyon the comprehension of a genus; an analogous or multivoc name, applied to many cases vaguely and remotely akin to eac other.[a] And again the same particular predicate may be rank both under Quality and under Relation; it need not belor exclusively to either one of them.[b] Moreover, Good, like *E* or *Unum,* is common to all the Categories, but is different represented in each.[c]

Aristotle comments at considerable length upon the four fi of the ten Categories. 1. Essence or Substance. 2. Quanti 3. Quality. 4. Relation. As to the six last, he says little up any of them; upon some, nothing at all.

His decuple partition of *Entia* or *Enunciata* is founded entir upon a logical principle. He looks at them in their relation Propositions; and his ten classes discriminate the relation whi they bear to each other as parts or constituent elements o proposition. Aristotle takes his departure, not from any resu of scientific research, but from common speech; and from

[a] Aristot. Categor. p. 8, b. 26. ἔστι δὲ ἡ ποιότης τῶν πλεοναχῶς λεγομένων, &c. See the Scholia, p. 68, b. 69 a., Brandis. Ammonius gives the true explanation of this phrase, τῶν πλεοναχῶς λεγομένων (p. 69, b. 7). Alexander and Simplikius try to make out that it implies here a συνώνυμον.

[b] Aristot. Categor. p. 11, a. 37. C pare the Scholion of Dexippus, p. a. 28-37.

[c] Aristot. Ethic. Nikomach. i. p. 1 a. 25: Ethic. Eudem. i. p. 1217, b. 2

dialectic, frequent in his time, which debated about matters of common life and talk, about received and current opinions.[a] We may presume him to have studied and compared a variety of current propositions, so as to discover what were the different relations in which Subjects and Predicates did stand or could stand to each other; also the various questions which might be put respecting any given subject, with the answers suitable to be returned.[b]

Aristotle ranks as his first and fundamental Category SUBSTANCE or ESSENCE—Οὐσία; the abstract substantive word corresponding to Τὸ ὄν; which last is the vast aggregate, not generically One but only analogically One, destined to be distributed among the ten Categories as *Summa Genera*. The First *Ens* or First Essence—that which is *Ens* in the fullest sense—is the *individual* concrete person or thing in nature; Sokrates, Bukephalus, this man, that horse, that oak-tree, &c. This First *Ens* is indispensable as Subject or *Substratum* for all the other Categories, and even for predication generally. It is a Subject only; it never appears as a predicate of anything else. As *Hic Aliquis* or *Hoc Aliquid*, it lies at the bottom (either expressed or implied) of all the work of predication. It is *Ens* or Essence most of all, *par excellence*; and is so absolutely indispensable, that if all First *Entia* were supposed to be removed, neither Second *Entia* nor any of the other Categories could exist.[c]

The Species is recognized by Aristotle as a Second *Ens* or Essence, in which these First Essences reside; it is less (has less completely the character) of Essence than the First, to which it serves as Predicate. The Genus is (strictly speaking) a Third Essence,[d] in which both the First and the Second

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[a] Waitz, ad Aristot. Categor. p. 284: "In Categoriis non de ipsâ rerum natura et veritate exponit, sed res tales capit, quales apparent in communi vita homini philosophia non imbuto, unde fit, ut in Categoriis alia sit *πρώτη οὐσία* et in prima philosophia: illa enim partes habet, hæc vero non componitur ex partibus."

Compare Metaphys. Z. p. 1032, b. 2, and the *ἀπορία* in Z. p. 1029, a., p. 1037, a. 28.

The different meaning of *πρώτη οὐσία* in the Categoriæ and in the Metaphysica, is connected with various difficulties and seeming discrepancies in the Aristotelian theory of cognition, which I shall advert to in a future chapter. See Zeller, Philos. der Griech. ii. 2, pp. 234, 262; Heyder, Aristotelische und Hegelsche Dialektik, p. 141, seq.

[b] Thus he frequently supposes a question put, an answer given, and the proper mode of answering. Categor. p. 2, b. 8: *ἐὰν γὰρ ἀποδιδῷ τις τὴν πρώτην οὐσίαν τί ἐστι, γνωριμώτερον καὶ οἰκειότερον ἀποδώσει*, &c.; also ibid. p. 2, b. 32; p. 3, a. 4, 20.

[c] Aristot. Categ. p. 2, a. 11, b. 6. *Οὐσία ἡ κυριώτατα καὶ πρώ ως καὶ μάλιστα λεγομένη—μὴ οὐσῶν οὖν τῶν πρώτων οὐσιῶν, ἀδύνατον τῶν ἄλλων τι εἶναι.*

[d] Aristotle here, in the Categoriæ, ranks Genus and Species as being, both of them, *δεύτεραι οὐσίαι*. Yet since he admits Genus to be farther removed from *πρώτη οὐσία* than Species is, he ought rather to have called Genus a Third Essence. In the Metaphysica he recognizes a gradation or ordination of *οὐσία* into First, Second, and Third, founded upon a totally different principle: the Concrete, which in the Categoriæ ranks

Essence are included; it is farther removed than the Species from the First Essence, and has therefore still less of the character of Essence. It stands as predicate both to the First and to the Second Essence. While the First Essence is more Essence than the Second, and the Second more than the Third, all the varieties of the First Essence are in this respect upon an equal footing with each other. This man, this horse, that tree, &c., are all Essence, equally and alike.[a] The First Essence admits of much variety, but does not admit graduation, or degrees of more or less.

Nothing else except Genera and Species can be called Second Essences, or said to belong to the Category Essence; for they alone declare what the First Essence is. If you are asked respecting Sokrates, *What* he *is?* and if you answer by stating the Species or the Genus to which he belongs—that he is a man or an animal—your answer will be appropriate to the question; and it will be more fully understood if you state the Species than if you state the Genus. But if you answer by stating what belongs to any of the other Categories (viz., that he is white, that he is running), your answer will be inappropriate, and foreign to the question; it will not declare *what* Sokrates *is*.[b] Accordingly, none of these other Categories can be called Essences. All of them rank as predicates both of First and of Second Essence; just as Second Essences rank as predicates of First Essences.[c]

Essence or Substance is not *in* a Subject; neither First nor Second Essence. The First Essence is neither *in* a Subject nor *predicated of* a Subject; the Second Essences are not *in* the First, but are *predicated of* the First. Both the Second Essence, and the definition of the word describing it, may be *predicated of* the First; that is, the predication is synonymous or univocal; whereas, of that which is *in* a Subject, the name may often be predicated, but never the definition of the name. What is true of the Second Essence, is true also of the Differentia; that it is not *in* a Subject, but that it may be *predicated* univocally *of* a Subject—not only its name, but also the definition of its name.[d]

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as *πρώτη οὐσία*, ranks as *τρίτη οὐσία* in the Metaphysica. See Metaphys. H. p. 1043. a. 18-28.

[a] Aristot. Categ. p. 2, b. 20; p. 3, b. 35.

[b] Ibid. p. 2, b. 29-37. *εἰκότως δὲ μετὰ τὰς πρώτας οὐσίας μόνα τῶν ἄλλων τὰ εἴδη καὶ τὰ γένη δεύτεραι οὐσίαι λέγονται· μόνα γὰρ δηλοῖ τὴν πρώτην οὐσίαν τῶν κατηγορουμένων. τὸν γάρ τινα ἄνθρωπον ἐὰν ἀποδιδῷ τις τί ἐστι, τὸ μὲν εἶδος ἢ τὸ γένος ἀποδιδοὺς οἰκείως ἀποδώσει, καὶ γνωριμώτερον ποιήσει ἄνθρωπον ἢ ζῷον ἀποδιδούς· τῶν δὲ ἄλλων ὅ, τι ἂν ἀποδιδῷ τις, ἀλλοτρίως ἔσται ἀποδεδωκώς, οἷον λευκὸν ἢ τρέχει ἢ ὁτιοῦν τῶν τοιούτων ἀποδιδούς· ὥστε εἰκότως τῶν ἄλλων ταῦτα μόνα οὐσίαι λέγονται.*

[c] Ibid. p. 3, a. 2.

[d] Ibid. p. 3, a. 7, 21, 34. *κοινὸν δὲ κατὰ πάσης οὐσίας τὸ μὴ ἐν ὑποκειμένῳ εἶναι-*

All Essence or Substance seems to signify *Hoc Aliquid Unum Numero*. The First Essence really does so signify, but the Second Essence does not really so signify: it only seems to do so, because it is enunciated by a substantive name, like the First.[a] It signifies really *Tale Aliquid*, answering to the enquiry *Quale Quid?* for it is said not merely of one thing numerically, but of many things each numerically one. Nevertheless, a distinction must be drawn. The Second Essence does not (like the Accident, such as white) signify *Tale Aliquid* simply and absolutely, or that and nothing more. It signifies *Talem Aliquam Essentiam*; it declares what the Essence is, or marks off the characteristic feature of various First Essences, each *Unum Numero*. The Genus marks off a greater number of such than the Species.[b]

Again, Essences have no contraries.[c] But this is not peculiar to Essences, for *Quanta* also have no contraries; there is nothing contrary to ten, or to that which is two cubits long. Nor is any one of the varieties of First Essence more or less Essence than any other variety. An individual man is as much Essence as an individual horse, neither more nor less. Nor is he at one time more a man than he was at another time; though he may become more or less white, more or less handsome.[d]

But that which is most peculiar to Essence, is, that while remaining *Unum et Idem Numero*, it is capable by change in itself of receiving alternately contrary Accidents. This is true of no other Category. For example, this particular colour, being one and the same in number, will never be now black, and then white; this particular action, being one and the same in number, will not be at one time virtuous, at another time vicious. The like is true respecting all the other Categories. But one and the same man will be now white, hot, virtuous; at another time, he will be black, cold, vicious. An objector may say that this is true, not merely of Essence, but also of Discourse and of Opinion; each of which (he will urge) remains *Unum Numero*, but is nevertheless recipient of contrary attributes; for the proposition or assertion, Sokrates is sitting,

οὐκ ἴδιον δὲ τῆς τοῦτο οὐσίας, ἀλλὰ καὶ ἡ διαφορὰ τῶν μὴ ἐν ὑποκειμένῳ ἐστίν—ὑπάρχει δὲ ταῖς οὐσίαις καὶ ταῖς διαφοραῖς τὸ πάντα συνωνύμως ἀπ' αὐτῶν λέγεσθαι.

[a] Aristot. Categ. p. 3, b. 10-16: Πᾶσα δὲ οὐσία δοκεῖ τόδε τι σημαίνειν. ἐπὶ μὲν οὖν τῶν πρώτων οὐσιῶν ἀναμφισβήτητον καὶ ἀληθές ἐστιν ὅτι τόδε τι σημαίνει· ἄτομον γὰρ καὶ ἓν ἀριθμῷ τὸ δηλούμενόν ἐστιν· ἐπὶ δὲ τῶν δευτέρων οὐσιῶν φαίνεται μὲν ὁμοίως τῷ σχήματι τῆς προσηγορίας τόδε τι σημαίνειν, ὅταν εἴπῃ ἄνθρωπον ἢ ζῷον, οὐ μὴν ἀληθές γε, ἀλλὰ μᾶλλον ποιόν τι σημαίνει.

[b] Ibid. p. 3, b. 18-24.

[c] Ibid. b. 24-30.

[d] Ibid. b. 34, seq.

or Substance can be a *Relatum* or not, he is puzzled to say; he seems to think that the Second Essence may be, but that the First Essence cannot be so. He concludes, however, by admitting that the question is one of doubt and difficulty.[a]

QUALITY is that according to which Subjects are called Such and Such (ποιοί τινες). It is, however, not a true genus, but a vague word, of many distinct, though analogous, meanings including an assemblage of particulars not bound together by any generic tie.[b] The more familiar varieties are—1. Habits or endowments (ἕξεις) of a durable character, such as, wise, just, virtuous; 2. Conditions more or less transitory, such as, hot cold, sick, healthy, &c. (διαθέσεις); 3. Natural powers or in capacities, such as hard, soft, fit for boxing, fit for running, &c. 4. Capacities of causing sensation, such as sweet of honey, ho and cold of fire and ice. But a person who occasionally blushe with shame, or occasionally becomes pale with fear, does no receive the designation of *such or such* from this fact; th occasional emotion is a passion, not a quality.[c]

A fifth variety of Quality is figure or circumscribing form straightness or crookedness. But dense, rare, rough, smooth are not properly varieties of Quality; objects are not denominate *such and such* from these circumstances. They rather declar position of the particles of an object in reference to each othe near or distant, evenly or unevenly arranged.[d]

Quality admits, in some cases but not in all, both contrariet and graduation. Just is contrary to unjust, black to white; bu there is no contrary to red or pale. If one of two contrari belongs to Quality, the other of the two will also belong Quality. In regard to graduation, we can hardly say th Quality in the abstract is capable of more and less; but it indisputable that different objects have more or less of the san quality. One man is more just, healthy, wise, than anothe though justice or health in itself cannot be called more or les

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correlates with the actual, the potential with the potential. Now, in the above pairs, ἐπιστητὸν and αἰσθητὸν are potentials, while ἐπιστήμη and αἴσθησις are actuals; therefore it is correct to say that τὸ ἐπιστητὸν and τὸ αἰσθητὸν will not cease to exist if you take away ἐπιστήμη and αἴσθησις. But the real and proper correlate to τὸ ἐπιστητὸν would be τὸ ἐπιστημονικόν; the proper correlate to τὸ αἰσθητὸν would be τὸ αἰσθητικὸν. And when we take these two latter pairs, it is perfectly correct to say, συναναιρεῖ ταῦτα ἄλληλα.

In the treatise, De Partibus Animalium, i. p. 641, b. 2, where Aristo makes νοῦς correlate with τὰ νοητά, must understand νοῦς as equivalent to νοητικόν, and as different from ἡ νόησις

[a] Aristot. Categ. p. 8, b. 22.

[b] See the first note on p. 66. Aris Categ. p. 8, b. 26: ἔστι δὲ ἡ ποιό τῶν πλεοναχῶς λεγομένων, &c. Comp Metaphys. Δ. p. 1020, a. 33, and Scholion of Alexander, p. 715, a. 5, Br

The abstract term Ποιότης was a r coinage in Plato's time; he introdu it with an apology (Theætet. p. 182 A

[c] Aristot. Categ. p. 9, b. 20-33.

[d] Ibid. p. 10, a. 11-24.

One thing cannot be more a triangle, square, or circle than another; the square is not more a circle than the oblong.[a]

What has just been said is not peculiar to Quality; but one peculiarity there is requiring to be mentioned. Quality is the foundation of Similarity and Dissimilarity. Objects are called *like* or *unlike* in reference to qualities.[b]

In speaking about Quality, Aristotle has cited many illustrations from *Relata*. Habits and dispositions, described by their generic names, are *Relata;* in their specific varieties they are Qualities. Thus cognition is always cognition *of something,* and is therefore a *Relatum;* but *grammatikê* (grammatical cognition) is not *grammatikê of any thing,* and is therefore a Quality. It has been already intimated[c] that the same variety may well belong to two distinct Categories.

After having thus dwelt at some length on each of the first four Categories, Aristotle passes lightly over the remaining six. Respecting *Agere* and *Pati,* he observes that they admit (like Quality) both of graduation and contrariety. Respecting *Jacēre,* he tells us that the predicates included in it are derived from the fact of positions, which positions he had before ranked among the *Relata.* Respecting *Ubi, Quando,* and *Habere,* he considers them all so manifest and intelligible, that he will say nothing about them; he repeats the illustrations before given—*Habere,* as, to be shod, or to be armed (to have shoes or arms); *Ubi,* as, in the Lykeium; *Quando,* as, yesterday, last year.[d]

No part of the Aristotelian doctrine has become more incorporated with logical tradition, or elicited a greater amount of comment and discussion,[e] than these Ten Categories or Predicaments. I have endeavoured to give the exposition as near as may be in the words and with the illustrations of Aristotle; because in many of the comments new points of view are introduced, sometimes more just than those of Aristotle, but not present to his mind. Modern logicians join the Categories side by side with the five Predicables, which are explained in the Eisagoge of Porphyry, more than five centuries after Aristotle's death. As expositors of Logic they are right in doing this; but my purpose is to illustrate rather the views of Ari-

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[a] Aristot. Categ. p. 10, b. 12; p. 11, a. 10, 11-24.

[b] Ibid. p. 11, a. 15.

[c] Ibid. a. 20-38. ἔτι εἰ τύγχανοι τὸ αὐτὸ πρός τι καὶ ποιὸν ὄν, οὐδὲν ἄτοπον ἐν ἀμφοτέροις τοῖς γένεσιν αὐτὸ καταριθμεῖσθαι.

[d] Ibid. b. 8-15. διὰ τὸ προφανῆ εἶναι, οὐδὲν ὑπὲρ αὐτῶν ἄλλο λέγεται ἢ ὅσα ἐν ἀρχῇ ἐρρέθη, &c.

[e] About the prodigious number of these comments, see the Scholion of Dexippus, p. 39, a. 34, Br.; p. 5, ed. Spengel.

stotle. The mind of Aristotle was not altogether exempt from that fascination[a] which particular numbers exercised upon the Pythagoreans and after them upon Plato. To the number Ten the Pythagoreans ascribed peculiar virtue and perfection. The fundamental Contraries, which they laid down as the Principles of the Universe, were ten in number.[b] After them, also, Plato carried his ideal numbers as far as the Dekad, but no farther. That Aristotle considered Ten to be the suitable number for a complete list of general heads—that he was satisfied with making up the list of ten, and looked for nothing beyond—may be inferred from the different manner in which he deals with the different items. At least, such was his point of view when he composed this treatise. Though he recognizes all the ten Categories as co-ordinate in so far that (except *Quale*) each is a distinct Genus, not reducible under either of the others, yet he devotes all his attention to the first four, and gives explanations (copious for him) in regard to these. About the fifth and sixth (*Agere* and *Pati*)[c] he says a little, though much less than we should expect, considering their extent and importance. About the last four, next to nothing appears. There are even passages in his writings where he seems to drop all mention of the two last (*Jacere* and *Habere*), and to recognize no more than eight Predicaments. In the treatise Categoriæ where his attention is fastened on Terms and their signification, and on

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[a] See Simpl. in Categ. Schol. p. 78, b. 14, Br.; also the two first chapters of the Aristotelian treatise De Cœlo; compare also, about the perfection of the τρίτη σύστασις, De Partibus Animalium, ii. p. 646, b. 9; De Generat. Animal. iii. p. 760, a. 34.

[b] Aristot. Metaph. A. p. 986, a. 8. There existed, in the time of the later Peripatetics, a treatise in the Doric dialect by Archytas—Περὶ τοῦ Παντός—discriminating Ten Categories, and apparently the same ten Categories as Aristotle. By several Aristotelian critics this treatise was believed to have been composed by Archytas the Tarentine, eminent both as a Pythagorean philosopher and as the leading citizen of Tarentum—the contemporary and friend of Plato, and, therefore, of course, earlier than Aristotle. Several critics believed that Aristotle had borrowed his Ten Categories from this work of Archytas; and we know that the latter preserved the total number of Ten. See Schol. ad Categor. p. 79, b. 3, Br.

But other critics affirmed, apparently with better reason, that the Archytas, author of this treatise, was a Peripatetic philosopher later than Aristotle; and that the doctrine of Archytas on the Categories was copied from Aristotle in the same manner as the Doric treatise on the Kosmos, ascribed to the Lokrian Timæus, was copied from the Timæus of Plato, being translated into a Doric dialect.

See Scholia of Simplikius and Boëthius, p. 33, a. 1, n.; p. 40, a. 43, Brandis. The fact that this treatise was ascribed to the Tarentine Archytas, indicates how much the number Ten was consecrated in men's minds as a Pythagorean canon.

[c] Trendelenburg thinks (Geschichte der Kategorienlehre, p. 131) that Aristotle must have handled the Categories *Agere* and *Pati* more copiously in other treatises; and there are some passages in his works which render this probable. See De Animâ, ii. p. 416, b. 35; De Generat. Animal. iv. p. 768, b. 15. Moreover, in the list of Aristotle's works given by Diogenes Laertius, one title appears—Περὶ τοῦ ποιεῖν καὶ πεπονθέναι (Diog. L. v. 22).

the appropriate way of combining these terms into propositions, he recites the ten *seriatim;* but in other treatises, where his remarks bear more upon the matter and less upon the terms by which it is signified, he thinks himself warranted in leaving out the two or three whose applications are most confined to special subjects. If he had thought fit to carry the total number of Predicaments to twelve or fifteen instead of ten,[a] he would probably have had little difficulty in finding some other general heads not less entitled to admission than *Jacere* and *Habere;* the rather, as he himself allows, even in regard to the principal Categories, that particulars comprised under one of them may also be comprised under another, and that there is no necessity for supposing each particular to be restricted to one Category exclusively.

These remarks serve partly to meet the difficulties pointed out by commentators in regard to the Ten Categories. From the century immediately succeeding Aristotle, down to recent times, the question has always been asked, why did Aristotle fix upon Ten Categories rather than any other number? and why upon these Ten rather than others? And ancient commentators[b] as well as modern have insisted, that the classification is at once defective and redundant; leaving out altogether some particulars, while it enumerates others twice over or more than twice. (This last charge is, however, admitted by Aristotle himself, who considers it no ground of objection that the same particular may sometimes be ranked under two distinct heads.) The replies made to the questions, and the attempts to shew cause for the selection of these Ten classes, have not been satisfactory; though it is certain that Aristotle himself treats the classification as if it were real and exhaustive,[c] obtained by

[a] Prantl expresses this view in his Geschichte der Logik (p. 206), and I think it just.

[b] Schol. p. 47, b. 14, seq., 49, a. 10, seq. Br.; also Simplikius ad Categor. fol. 15, 31 A, 33 E. ed. Basil., 1551.

[c] Scholia ad Analyt. Poster. (I. xxiii. p. 83, a. 21) p. 227, b. 40, Br.: Ὅτι δὲ τοσαῦται μόναι αἱ κατηγορίαι αἱ κατὰ τῶν οὐσιῶν λεγόμεναι, ἐκ τῆς ἐπαγωγῆς λαμβάνει.

Brentano (in his treatise, Ueber die Bedeutung des Seienden in Aristoteles, Sects. 12 and 13, pp. 148-177) attempts to draw out a scheme of systematic deduction for the Categories. He quotes (pp. 181, 182) a passage from Thomas Aquinas, in which such a scheme is set forth acutely and plausibly. But if Aristotle had had any such system present to his mind, he would hardly have left it to be divined by commentators.

Simplikius observes (Schol. ad Categ. p. 44, a. 30) that the last nine Categories coincide in the main (excepting such portion of *Quale* as belongs to the Essence) with τὸ ὂν κατὰ συμβεβηκός: which latter, according to Aristotle's repeated declarations, can never be the matter of any theorizing or scientific treatment—οὐδεμία ἐστὶ περὶ αὐτὸ θεωρία, Metaphys. E. p. 1026, b. 4; K. p. 1064, b. 17. This view of Aristotle respecting τὸ συμβεβηκός, is hardly consistent with a scheme of intentional deduction for the accidental predicates.

comparing many propositions and drawing from them an ir duction. He tries to determine, in regard to some particula enquiries, under which of the Ten *Summa Genera* the subje of the enquiry is to be ranged; he indicates some predicate of extreme generality (*Unum, Bonum,* &c.), which extend ove all or several Categories, as equivocal or analogous, representin no true *Genera.* But though Aristotle takes this view of th completeness of his own classification, he never assigns th grounds of it, and we are left to make them out in the be way we can.

We cannot safely presume, I think, that he followed out an deductive principle or system; if he had done so, he wou probably have indicated it. The decuple indication of gener heads arose rather from comparison of propositions and i duction therefrom. Under each of these ten heads, son predicate or other may always be applied to every concre individual object, such as a man or animal. Aristotle proceed by comparing a variety of propositions, such as were employ in common discourse or dialectic, and throwing the differe predicates into *genera,* according as they stood in differe logical relation to the Subject. The analysis applied is n metaphysical but logical; it does not resolve the real individu into metaphysical ἀρχαὶ or Principles, such as Form and Matte it accepts the individual as he stands, with his full compl array of predicates embodied in a proposition, and analyses th proposition into its logical constituents.[a] The predicates der

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[a] Aristot. Metaphys. Z. p. 1038, b. 15. διχῶς ὑποκεῖται, ἢ τόδε τι ὄν, ὥσπερ τὸ ζῷον τοῖς πάθεσιν, ἢ ὡς ἡ ὕλη τῇ ἐντελεχείᾳ. The first mode of ὑποκείμενον is what is in the Categories. For the second, which is the metaphysical analysis, see Aristot. Metaph. Z. p. 1029, a. 23: τὰ μὲν γὰρ ἄλλα τῆς οὐσίας κατηγορεῖται, αὕτη δὲ τῆς ὕλης. ὥστε τὸ ἔσχατον καθ' αὑτὸ οὔτε τὶ οὔτε ποσὸν οὔτε ἄλλο οὐθέν ἐστι.

Porphyry and Dexippus tell us (Schol. ad Categ. p. 45, a. 6-30) that both Aristotle and the Stoics distinguished πρῶτον ὑποκείμενον and δεύτερον ὑποκείμενον. The πρῶτον ὑποκείμενον is ἡ ἄποιος ὕλη—τὸ δυνάμει σῶμα, which Aristotle insists upon in the Physica and Metaphysica, the correlate of εἶδος generally. The δεύτερον ὑποκείμενον, ὃ κοινῶς ποιὸν ἢ ἰδίως ὑφίσταται, coincides with the πρώτη οὐσία of the Categories, already implicated with εἶδος and stopping short of metaphysical analysis.

The remarks of Boëthus and Simplil upon this point deserve attention. Sc pp. 50-54, Br.; p. 54, a. 2: οὐ περὶ ἀσχέτου ὕλης ἐστὶν ὁ παρὼν λόγος, ἀ τῆς ἤδη σχέσιν ἐχούσης πρὸς τὸ εἶδος. τ σύνθετον δηλόνοτι, ὅπερ ἐστὶ τὸ ἄτο ἐπιδέχεται τὸ τόδε. They point out the terms Form and Matter are not n tioned in the Categories, nor do t serve to illustrate the Categories, w do not carry analysis so far back, take their initial start from τόδε the σύνθετον of Form and Matte οὐσία κυριώτατα καὶ πρώτως καὶ μάλ λεγομένη.

Simplikius says (p. 50, a. 17):—δυι δὲ τοῦ μὴ μνημονεῦσαι τοῦ εἴδους καὶ τῆς αἴτιον λέγειν, καὶ τὸ τὴν τῶν Κατηγ πραγματείαν κατὰ τὴν πρόχειρον κοινὴν τοῦ λόγου χρῆσιν ποιεῖ τὸ δὲ τῆς ὕλης καὶ τοῦ εἴδους ὄνομα κ ὑπὸ τούτων σημαινόμενα οὐκ ἦν τοῖς πο συνήθη, &c. Compare p. 47, a. 27. is what Dexippus says also, that

their existence from being attached to the First Subject, and have a different manner of existence according as they are differently related to the First Subject.[a] What is this individual, Sokrates? He is an *animal*. What is his Species? *Man*. What is the Differentia, limiting the Genus and constituting the Species? *Rationality, two-footedness*. What is his height and bulk? He is *six feet* high, and is of *twelve stone* weight. What manner of man is he? He is *flat-nosed, virtuous, patient, brave*. In what relation does he stand to others? He is a *father*, a *proprietor*, a *citizen*, a *general*. What is he doing? He is *digging his garden, ploughing his field*. What is being done to him? He is *being rubbed with oil*, he is *having his hair cut*. Where is he? *In the city, at home, in bed*. When do you speak of him? *As he is, at this moment, as he was, yesterday, last year*. In what posture is he? He is *lying down, sitting, standing up, kneeling, balancing on one leg*. What is he wearing? He *has a tunic, armour, shoes, gloves*.

Confining ourselves (as I have already observed that Aristotle does in the Categories) to those perceptible or physical subjects which every one admits,[b] and keeping clear of metaphysical entities, we shall see that respecting any one of these subjects the nine questions here put may all be put and answered; that the two last are most likely to be put in regard to some living being; and that the last can seldom be put in regard to any other subject except a person (including man, woman, or child). Every individual person falls necessarily under each of the ten Categories; belongs to the Genus animal, Species man; he is of a certain height and bulk; has certain qualities; stands in certain relations to other persons or things; is doing something and suffering something; is in a certain place; must be described with reference to a certain moment of time; is in a certain attitude or posture; is clothed or equipped in a certain manner. Information of some kind may always be given respecting him under each of these heads; he is always by necessity *quantus*, but not always of any particular quantity. Until such information is given, the concrete individual is not

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Categories bear only upon *τὴν πρώτην χρείαν τοῦ λόγου καθ' ἣν τὰ πράγματα δηλοῦν ἀλλήλοις ἐφιέμεθα* (p. 13, ed. Spengel; also p. 49).

Waitz, ad Categor. p. 284. "In Categoriis, non de ipsâ rerum naturâ et veritate exponit, sed res tales capit, quales apparent in communi vitâ homini philosophiâ non imbuto."

We may add, that Aristotle applies the metaphysical analysis—Form and Matter—not only to the Category *οὐσία*, but also to that of *ποιὸν* and *ποσόν* (De Cœlo, iv. 312, a. 14.)

[a] Aristot. Metaph. Δ. 1017, a. 23. *ὁσαχῶς γὰρ λέγεται, τοσαυταχῶς τὸ εἶναι σημαίνει.*

[b] Ibid. Z. p. 1028, b. 8, seq.: p. 1042, a. 25. *αἱ αἰσθηταὶ οὐσίαι—αἱ ὁμολογούμεναι οὐσίαι.*

known under conditions thoroughly determined.[a] Moreover eac head is separate and independent, not resolvable into any of th rest, with a reservation, presently to be noticed, of Relation i its most comprehensive meaning. When I say of a man, th he is at home, lying down, clothed with a tunic, &c., I do n predicate of him any quality, action, or passion. The inform tion which I give belongs to three other heads distinct fro these last, and distinct also from each other. If you suppre the two last of the ten Categories and leave only the precedi eight, under which of these eight are you to rank the predicate Sokrates is *lying down*, Sokrates is *clothed with a tunic*, &c The necessity for admitting the ninth and tenth Categori (*Jacere* and *Habere*) as separate general heads in the list, is great as the necessity for admitting most of the Categories whi precede. The ninth and tenth are of narrower comprehensio and include a smaller number of distinguishable varieties, th the preceding; but they are not the less separate heads of i formation. So, among the chemical elements enumerated modern science, some are very rarely found; yet they are not f that reason the less entitled to a place in the list.

If we seek not to appreciate the value of the Ten Categori as a philosophical classification, but to understand what was the mind of Aristotle when he framed it, we shall attend, not much to the greater features, which it presents in common wi every other scheme of classification, as to the minor featu which constitute its peculiarity. In this point of view the t last Categories are more significant than the first four, and t tenth is the most significant of all; for every one is astonish when he finds *Habere* enrolled as a tenth *Summum Genus*,

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[a] Prantl observes, Geschichte der Logik, p. 208:—"Fragen wir, wie Aristoteles überhaupt dazu gekommen sei, von Kategorien zu sprechen, und welche Geltung dieselben bei ihm haben, so ist unsere Antwort hierauf folgende: Aristoteles geht, im Gegensatze gegen Platon, davon aus, dass die Allgemeinheit in der Concretion des Seienden sich verwirkliche und in dieser Realität von dem menschlichen Denken und Sprechen ergriffen werde; der Verwirklichungsprocess des concret Seienden ist der Uebergang vom Unbestimmten, jeder Bestimmung aber fähigen, zum allseitig Bestimmten, welchem demnach die Bestimmtheit überhaupt als eine selbst concret gewordene einwohnt und ebenso in des Menschen Rede von ihm ausgesagt wird. Das grundwesentliche Ergebniss der Verwirklichung ist sonach: die zeitlich-räumlich concret auftretende und hiemit individ gewordene Substanzialität, in einer Zustande der Concretion entsprechen Erscheinungsweise; diese letztere umf das ganze habituelle Dasein und Wir der concreten Substanz, welche in Welt der räumlichen Ausdehnung numerären Vielheit erscheint. Die o logische Basis demnach der Katego ist der in die Concretion führende wirklichungsprocess der Bestimmt überhaupt."

[b] Plotinus, among his various grou of exception to the ten Aristotelian C gories, objects to the ninth and tent the ground of their narrow comprehen (Ennead. vi. 1, 23, 24).

Boëthus expressly vindicated the of ἔχειν to be recognized as a sep Category, against the Stoic objecto Schol. ad Categ. p. 81, a. 5.

ordinate with *Quantum* and *Quale*. Now what is remarkable about the ninth and tenth Categories is, that individual persons or animals are the only Subjects respecting whom they are ever predicated, and are at the same time Subjects respecting whom they are constantly (or at least frequently) predicated. An individual person is habitually clothed in some particular way in all or part of his body; he (and perhaps his horse also) are the only Subjects that are ever so clothed. Moreover animals are the only Subjects, and among them man is the principal Subject, whose changes of posture are frequent, various, determined by internal impulses, and at the same time interesting to others to know. Hence we may infer that when Aristotle lays down the Ten Categories, as *Summa Genera* for all predications which can be made about any given Subject, the Subject which he has wholly, or at least principally, in his mind is an individual Man. We understand, then, how it is that he declares *Habere* and *Jacere* to be so plain as to need no farther explanation. What is a man's posture? What is his clothing or equipment? are questions understood by every one.[a] But when Aristotle treats of *Habere* elsewhere, he is far from recognizing it as narrow and plain *per se*. Even in the Post-Predicamenta (an appendix tacked on to the Categoriæ, either by himself afterwards, or by some follower) he declares *Habere* to be a predicate of vague and equivocal signification; including portions of *Quale*, *Quantum*, and *Relata*. And he specifies the personal equipment of an individual as only one among these many varieties of signification. He takes the same view in the fourth book (Δ.) of the Metaphysica, which book is a sort of lexicon of philosophical terms.[b] This enlargement of the meaning of the word *Habere* seems to indicate an alteration of Aristotle's point of view, dropping that special reference to an individual man as Subject, which was present to him when he drew up the list of Ten

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[a] In the thirteenth and fourteenth chapters of Mr. James Harris's Philosophical Arrangements, there is a learned and valuable illustration of these two last Aristotelian Categories. I think, however, that he gives to the Predicament Κεῖσθαι (*Jacere*) a larger and more comprehensive meaning than it bears in the treatise Categoriæ; and that neither he, nor the commentators whom he cites (p. 317), take sufficient notice of the marked distinction drawn in that treatise between κεῖσθαι and θέσις (Cat. p. 6, b. 12). Mr. Harris ranks the arrangement of words in an orderly discourse, and of propositions in a valid syllogism, as cases coming under the Predicament Κεῖσθαι; which is travelling far beyond the meaning of that word in the Aristotelian Categories. At the same time he brings out strongly the fact, that living beings, and especially *men*, are the true and special subjects of predicates belonging to Κεῖσθαι and Ἔχειν. The more we attend to this, the nearer approach shall we make to the state of Aristotle's mind when he drew up the list of Categories; as indeed Harris himself seems to recognize (chap. ii. p. 29).

[b] Aristot. Categor. p. 15, b. 17; Metaphys. Δ. p. 1023, a. 8.

Categories. The like alteration carried him still farther, so as to omit the ninth and tenth almost entirely, when he discusses the more extensive topics of philosophy. Some of his followers, on the contrary, instead of omitting *Habere* out of the list of Categories, tried to procure recognition for it in the larger sense which it bears in the Metaphysica. Archytas ranked it fifth in the series, immediately after *Relata*.[a]

The narrow manner in which Aristotle conceives the Predicament *Habere* in the treatise Categoriæ, and the enlarged sense given to that term both in the Post-Predicaments and in the Metaphysica, lead to a suspicion that the Categoriæ is comparatively early, in point of date, among his compositions. It seems more likely that he should begin with the narrower view, and pass from thence to the larger, rather than *vice versâ*. Probably the predicates specially applicable to Man would be among his early conceptions, but would by later thought be tacitly dropped, so as to retain those only which had a wider philosophical application.

I have already remarked that Aristotle, while enrolling all the Ten Predicaments as independent heads, each the *Generalissimum* of a separate descending line of predicates, admitted at the same time that various predicates did not of necessity belong to one of these lines exclusively, but might take rank in more than one line. There are some which he enumerates under all the different heads of Quality, Relation, Action, Passion. The classification is evidently recognized as one to which we may apply a remark which he makes especially in regard to Quality and Relation, under both of which heads (he says) the same predicates may sometimes be counted.[c] And the observation is much more extensively true than he was aware; for he both conceives and defines the Category of Relation or Relativity

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[a] See the Scholia of Simplikius, p. 80, b. 7, seq.; p. 92, b. 41, Brand.; where the different views of Archytas, Plotinus, and Boêthus, are given; also p. 59, b. 43: *προηγεῖται γὰρ ἡ συμφυὴς τῶν πρός τι σχέσις τῶν ἐπικτήτων σχέσεων, ὡς καὶ τῷ Ἀρχύτᾳ δοκεῖ.* In the language of Archytas, *αἱ ἐπίκτητοι σχέσεις* were the equivalent of the Aristotelian *ἔχειν*.

[b] Respecting the paragraph (at the close of the Categoriæ) about *τὸ ἔχειν*, see the Scholion in Waitz's ed. of the Organon, p. 38.

The fact that Archytas in his treatise presented the Aristotelian Category *ἔχειν* under the more general phrase of *αἱ ἐπίκτητοι σχέσεις* (see the preceding note), is among the reasons for believing that treatise to be later than Aristotle.

[c] Aristot. Categ. p. 11, a. 37.

Simplikius says that what Aristotle admits about *ποιότης*, is true about the other Categories also, viz.: that it is not a strict and proper *γένος*. Each of the ten Categories is (what Aristotle says about *τὸ ὄν*) *μέσον τῶν τε συνωνύμων καὶ ὁμωνύμων.—οὐδὲ γὰρ ἐκεῖνα κυρίως ἐστὶ γένη, οὐδὲ ὡς γένη τῶν ὑπ' αὐτὰ κατηγορεῖται, τάξεως οὔσης πανταχοῦ πρώτων καὶ δευτέρων.* (Scholia ad Categor. p. 69, b. 30, Br.) This is a remarkable observation, which has not been sufficiently adverted to, I think, by Brentano in his treatise on Aristotle's Ontology.

(*Ad Aliquid*) in a way much narrower than really belongs to it. If he had assigned to this Category its full and true comprehension, he would have found it implicated with all the other nine. None of them can be isolated from it in predication.

That *Agere* and *Pati* (with the illustrations which he himself gives thereof—*urit, uritur*) may be ranked as varieties under the generic Category of Relation or Relativity, can hardly be overlooked. The like is seen to be true about *Ubi* and *Quando*, when we advert to any one of the predicates belonging to either; such as, *in the market-place, yesterday.*[a] Moreover, not merely the last six of the ten Categories, but also the second and fourth (*Quantum* and *Quale*) are implicated with and subordinated to Relation. If we look at *Quantum*, we shall find that the example which Aristotle gives of it is τριπῆχυς, tricubital, or three cubits long; a term quite as clearly relative as the term διπλάσιος or double, which he afterwards produces as instance of the Category *Ad Aliquid.*[b] When we are asked the questions, How much is the height? How large is the field? we cannot give the information required except by a relative predicate—*it is three feet —it is four acres;* we thereby carry back the mind of the questioner to some unit of length or superficies already known to him, and we convey our meaning by comparison with such unit. Again, if we turn from *Quantum* to *Quale*, we find the like Relativity implied in all the predicates whereby answer is made to the question Ποιός τίς ἐστι; *Qualis est?* What manner of man is he? *He is such as A, B, C*—persons whom we have previously seen, or heard, or read of.[c]

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[a] The remarks of Plotinus upon these four last-mentioned Categories are prolix and vague, but many of them go to shew how much τὸ πρός τι is involved in all of the four (Ennead. vi. 1, 14-18).

[b] Trendelenburg (Kategorienlehre, p. 184) admits a certain degree of interference and confusion between the Categories of *Quantum* and *Ad Aliquid;* but in very scanty measure, and much beneath the reality.

[c] The following passages from Mr. James Mill (Analysis of the Phenomena of the Human Mind, vol. ii. ch. xiv. sect. ii. pp. 48, 49, 56, 1st ed.) state very clearly the Relativity of the predicates of Quantity and Quality:—

"It seems necessary that I should say something of the word *Quantus*, from which the word Quantity is derived. *Quantus* is the correlate of *Tantus*. *Tantus, Quantus*, are relative terms, applicable to all the objects to which we apply the terms Great, Little."—"Of two lines, we call the one *tantus*, the other *quantus*. The occasions on which we do so, are when the one is as long as the other."—"When we say that one thing is *tantus*, *quantus* another, or one so great, as the other is great; the first is referred to the last, the *tantus* to the *quantus*. The first is distinguished and named by the last. The *Quantus* is the standard."—"On what account, then, is it that we give to any thing the name *Quantus?* As a standard by which to name another thing, *Tantus*. The thing called *Quantus* is the previously known thing, the ascertained amount, by which we can mark and define the other amount."

"*Talis*, *Qualis*, are applied to objects in the same way, on one account, as *Tantus*, *Quantus*, on another; and the explanation we gave of *Tantus*, *Quantus*, may be applied, *mutatis mutandis*, to the pair of relatives which we have now

We thus see that all the predicates, not only under the Category which Aristotle terms *Ad Aliquid*, but also under all the last nine Categories, are relative. Indeed the work of predication is always relative. The express purpose, as well as the practical usefulness, of a significant predicate is, to carry the mind of the hearer either to a comparison or to a general notion which is the result of past comparisons. But though each predicate connotes Relation, each connotes a certain *fundamentum* besides, which gives to the Relation its peculiar character. Relations of Quantity are not the same as relations of Quality; the predicates of the former connote a *fundamentum* differen from the predicates of the latter, though in both the meaning conveyed is relative. In fact, every predicate or concret general name is relative, or connotes a Relation to somethin else, actual or potential, beyond the thing named. The onl name not relative is the Proper name, which connotes no attri butes, and cannot properly be used as a predicate (so Aristotl remarks), but only as a Subject.[a] Sokrătes, Kallias, Bukephalus &c., denotes the *Hoc Aliquid* or *Unum Numero*, which, whe pronounced alone, indicates some concrete aggregate (as ye unknown) which may manifest itself to my senses, but does no so far as the name is concerned, involve necessary reference t anything besides; though even these names, when one and th same name continues to be applied to the same object, may b

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named. *Tantus*, *Quantus*, are names applied to objects on account of dimension. *Talis*, *Qualis*, are names applied to objects on account of all other sensations. We apply *Tantus*, *Quantus*, to a pair of objects when they are equal; we apply *Talis*, *Qualis*, to a pair of objects when they are like. One of the objects is then the standard. The object *Qualis* is that to which the reference is made."

Compare the same work, vol. i. ch. ix. p. 225:—"The word *Such* is a relative term, and always connotes so much of the meaning of some other term. When we call a thing *such*, it is always understood that it is such *as* some other thing. Corresponding with our words *such as*, the Latins had *Talis*, *Qualis*."

[a] You may make Sokrates a predicate, in the proposition, *τὸ λευκὸν ἐκεῖνο Σωκράτης ἐστίν*, but Aristotle dismisses this as an irregular or perverse manner of speaking (see Analytic. Priora, i. p. 43, a. 35; Analyt. Poster. i. p. 83, a. 2-16).

Alexander calls these propositions *αἱ παρὰ φύσιν προτάσεις* (see Schol. ad Metaphys. Δ. p. 1017, a. 23).

Mr. James Harris observes (Philosophical Arrangements, ch. x. p. 21 also 317, 348):—"Hence too we may s why Relation stands next to Quantit for in strictness the Predicaments whi follow are but different modes of Relatic marked by some peculiar character their own, over and above the relati character, which is common to them al To which I would add, that the first t Categories, Substance and Quantity, a no less relative or correlative than t eight later Categories; as indeed Har himself thinks; see the same wo pp. 90, 473: "Matter and Attribute a essentially distinct, yet, like *convex* a *concave*, they are by nature inseparab We have already spoken as to the separability of attributes; we now spe as to that of matter. Ἡμεῖς δὲ φαμὲν μ εἶναί τινα ὕλην τῶν σωμάτων τῶν αἰσθητ ἀλλὰ ταύτην οὐ χωριστὴν ἀλλ' ἀεὶ μετ' ἐν τιώσεως—ὕλην τὴν ἀχώριστον μὲν, ὑποι μένην δὲ τοῖς ἐναντίοις (Aristot. De G et Corr. p. 329, a. 24). By contrar Aristotle means here the several at butes of matter, hot, cold, &c.; fr some one or other of which matter always inseparable."

held to connote a real or supposed continuity of past or future existence, and become thus to a certain extent relative.

We must observe that what the proper name denotes is any certain concrete One and individual,[a] with his attributes essential and non-essential, whatever they may be, though as yet undeclared, and with his capacity of receiving other attributes different and even opposite. This is what Aristotle indicates as the most special characteristic of Substance or Essence, that while it is *Unum et Idem Numero*, it is capable of receiving contraries. This potentiality of contraries, described as characterizing the *Unum et Idem Numero*,[b] is relative to something about to come; the First Essence is doubtless logically First, but it is just as much relative to the Second, as the Second to the First. We know it only by two negations and one affirmation, all of which are relative to predications *in futuro*. It is neither in a Subject, nor predicable of a Subject. It is itself the ultimate Subject of all predications and all inherencies. Plainly, therefore, we know it only relatively to these predications and inherencies. Aristotle says truly, that if you take away the First Essences, everything else, Second Essences as well as Accidents, disappears along with them. But he might have added with equal truth, that if you take away all Second Essences and all Accidents, the First Essences will disappear equally. The correlation and interdependence is reciprocal.[c] It may be suitable, with a view to clear and retainable philosophical explanation, to state the Subject first and the predicates afterwards; so that the Subject may thus be considered as logically *prius*. But in truth the Subject is only a *substratum* for predicates,[d] as much as the predicates are *superstrata* upon

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[a] Simplikius ap. Schol. p. 52, a. 42: πρὸς ὅ φασιν οἱ σπουδαιότεροι τῶν ἐξηγητῶν, ὅτι ἡ αἰσθητὴ οὐσία συμφόρησίς τίς ἐστι ποιοτήτων καὶ ὕλης, καὶ ὁμοῦ μὲν πάντα συμπαγέντα μίαν ποιεῖ τὴν αἰσθητὴν οὐσίαν, χωρὶς δὲ ἕκαστον λαμβανόμενον τὸ μὲν ποιὸν τὸ δὲ ποσόν ἐστι λαμβανόμενον, ἤ τι ἄλλο.

[b] Aristot. Categ. p. 4, a. 10: Μάλιστα δὲ ἴδιον τοῦτο τῆς οὐσίας δοκεῖ εἶναι, τὸ ταὐτὸν καὶ ἓν ἀριθμῷ ὂν τῶν ἐναντίων εἶναι δεκτικόν. See Waitz, note, p. 290: δεκτικὸν dicitur τὸ ἐν ᾧ πέφυκεν ὑπάρχειν τι.

Dexippus, and after him Simplikius, observe justly, that the characteristic mark of πρώτη οὐσία, is this very circumstance of being *unum numero*, which belongs in common to all πρῶται οὐσίαι, and is indicated by the Proper name: λύσις δὲ τούτου, ὅτι αὐτὸ τὸ μίαν εἶναι ἀριθμῷ, κοινός ἐστι λόγος. (Simpl. in Categor., fol. 22 Δ.; Dexippus, book ii. sect 18, p. 57, ed. Spengel.)

[c] Aristot. Categ. p. 2, b. 5. μὴ οὐσῶν οὖν τῶν πρώτων οὐσιῶν ἀδύνατον τῶν ἄλλων τι εἶναι.

Mr. John Stuart Mill observes: "As to the self-existence of Substance, it is very true that a substance may be conceived to exist without any other substance; but so also may an attribute without any other attributes. And we can no more imagine a substance without attributes, than we can imagine attributes without a substance." (System of Logic, bk. i. ch. iii. p. 61, 6th ed.)

[d] Aristot. Physic. ii. p. 194, b. 8. ἔτι τῶν πρός τι ἡ ὕλη· ἄλλῳ γὰρ εἴδει ἄλλη ὕλη.

Plotinus puts this correctly, in his criticisms on the Stoic Categories; criticisms which on this point equally apply

the Subject. The term *substratum* designates not an absolute or a *per se*, but a *Correlatum* to certain *superstrata*, determined or undetermined: now the *Correlatum* is one of the pair implicated directly or indirectly in all Relation; and it is in fact specified by Aristotle as one variety of the Category *Ad Aliquid.*[a] We see therefore that the idea of Relativity attaches to the first of the ten Categories, as well as to the nine others. The inference from these observations is, that Relation or Relativity, understood in the large sense which really belongs to it, ought to be considered rather as an Universal, comprehending and pervading all the Categories, than as a separate Category in itself, co-ordinate with the other nine. It is the condition and characteristic of the work of predication generally; the last analysis of which is into Subject and Predicate, in reciprocal implication with each other. I remark that this was the view taken of it by some well-known Peripatetic commentators of antiquity;[b] by Andronikus, for example, and by Ammonius after him. Plato, though he makes no attempt to draw up a list of Categories, has an incidental passage respecting Relativity;[c] conceiving it in a very extended sense, apparently as belonging more or less to all predicates. Aristotle, though in the Categoriæ he gives a narrower explanation of it, founded upon grammatical rather than real considerations, yet intimates in other places that predicates ranked under the heads of *Quale*, *Actio*, *Passio*, *Jacere*, &c., may also be looked at as belonging to the head of *Ad Aliquid.*[d] This latter, moreover, he himsel

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to the Aristotelian: πρός τι γὰρ τὸ ὑποκείμενον, οὐ πρὸς τὸ ἐν αὐτῷ, ἀλλὰ πρὸς τὸ ποιοῦν εἰς αὐτό, κείμενον. Καὶ τὸ ὑποκείμενον ὑποκεῖται πρὸς τὸ οὐχ ὑποκείμενον· εἰ τοῦτο, πρὸς τὰ τὸ ἔξω, &c. Also Dexippus in the Scholia ad Categor. p. 45, a. 26: τὸ γὰρ ὑποκείμενον κατὰ πρός τι λέγεσθαι ἐδόκει, τινὶ γὰρ ὑποκείμενον.

[a] Aristot. Metaphys. Δ. p. 1020, b. 31, p. 1021, a. 27, seq.

[b] Schol. p. 60, a. 38, Br.; p. 47, b. 26. Xenokrates and Andronikus included all things under the two heads τὸ καθ' αὑτὸ and τὸ πρός τι. Ἀνδρόνικος μὲν γὰρ ὁ Ῥόδιος τελευταίαν ἀπονέμει τοῖς πρός τι τάξιν, λέγων αἰτίαν τοιαύτην. τὰ πρός τι οἰκείαν ὕλην οὐκ ἔχει· παραφυάδι γὰρ ἔοικεν οἰκείαν φύσιν μὴ ἐχούσῃ ἀλλὰ περιπλεκομένῃ τοῖς ἔχουσιν οἰκείαν ῥίζαν· αἱ δὲ ἔννεα κατηγορίαι οἰκείαν ὕλην ἔχουσιν· εἰκότως οὖν τελευταίαν ὤφειλον ἔχειν τάξιν. Again, Schol. p. 60, a. 24 (Ammonius): καλῶς δέ τινες ἀπεικάζουσι τὰ πρός τι παραφυάσιν, &c. Also p. 59, b. 41; p. 49, a. 47; p. 61, b. 29: ἴσως δὲ καὶ ὅτι τὰ πρός τι τοῖς ἄλλοις γένεσιν ὑφέστηκε, διὰ τοῦ σὺν αὐτοῖς θεωρεῖται, κἂν μὴ προηγουμέν ἔτυχε μνήμης (and the Scholia ad p. a. 36, prefixed to Waitz's edition, p. 3 Also p. 62, a. 37: διὰ ταῦτα δὲ ὡς παρ φυομένην ταῖς ἄλλαις κατηγορίαις τὴν τ πρός τι ἐπεισοδιώδη νομίζουσι, καίτοι προ γουμένην οὖσαν καὶ κατὰ διαφορὰν οἰκεί θεωρουμένην. Boëthus had written entire book upon τὰ πρός τι, Schol. p. b. 9.

[c] Plato, Republic, iv. 437 C. to 439 (comparo also Sophistes, p. 255 C., a Politicus, p. 285). Καὶ τὰ πλείω δὴ π τὰ ἐλάττω καὶ τὰ διπλάσια πρὸς τὰ ἡμί καὶ πάντα τὰ τοιαῦτα, καὶ αὖ βαρύτερα π κουφότερα καὶ θάττω πρὸς βραδύτερα, κ ἔτι γε τὰ θερμὰ πρὸς τὰ ψυχ καὶ πάντα τὰ τούτοις ὅμοια, ἆρ' οὐχ οὕ ἔχει; (438 C.)

[d] See Metaphysic. Δ. p. 1020, b. p. 1021, b. 10. Trendelenburg obser (Gesch. der Kategorienlehre, pp. 1 122, seq.) how much more the descript

declares elsewhere to be *Ens* in the lowest degree, farther removed from the *Prima Essentia* than any of the other Categories; to be more in the nature of an appendage to some of them, especially to *Quantum* and *Quale;*[a] and to presuppose, not only the *Prima Essentia* (which all the nine later Categories presuppose), but also one or more of the others, indicating the particular mode of comparison or Relativity in each case affirmed. Thus, under one aspect, Relation or Relativity may be said to stand *prius naturâ*, and to come first in order before all the Categories, inasmuch as it is implicated with the whole business of predication (which those Categories are intended to resolve into its elements), and belongs not less to the mode of conceiving what we call the Subject, than to the mode of conceiving what we call its Predicates, each and all. Under another aspect, Relativity may be said to stand last in order among the Categories—even to come after the adverbial Categories *Ubi et Quando;* because its *locus standi* is dim and doubtful, and because every one of the subordinate predicates belonging to it may be seen to belong to one or other of the remaining Categories also. Aristotle remarks that the Category *Ad Aliquid* has no peculiar and definite mode of generation corresponding to it, in the manner that Increase and Diminution belong to *Quantum*, Change to *Quale*, Generation, simple and absolute, to Essence or Substance.[b] New relations may become predicable of a thing, without any change in the thing itself, but simply by changes in other things.[c]

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given of *πρός τι* in the Categoriæ is determined by verbal or grammatical considerations, than in the Metaphysica and other treatises of Aristotle.

[a] See Ethic. Nikomach. i. p. 1096, a. 20: *τὸ δὲ καθ' αὑτὸ καὶ ἡ οὐσία πρότερον τῇ φύσει τοῦ πρός τι· παραφυάδι γὰρ τοῦτ' ἔοικε καὶ συμβεβηκότι τοῦ ὄντος, ὥστε οὐκ ἂν εἴη κοινή τις ἐπὶ τούτων ἰδέα.* (The expression *παραφυάδι* was copied by Andronikus; see a note on the preceding page.) Metaphys. N. p. 1088, a. 22-26: *τὸ δὲ πρός τι πάντων ἥκιστα φύσις τις ἢ οὐσία τῶν κατηγοριῶν ἐστί, καὶ ὑστέρα τοῦ ποιοῦ καὶ ποσοῦ· καὶ πάθος τι τοῦ ποσοῦ τὸ πρός τι, ὥσπερ ἐλέχθη, ἀλλ' οὐχ ὕλη, εἴ τι ἕτερον καὶ τῷ ὅλως κοινῷ πρός τι καὶ τοῖς μέρεσιν αὐτοῦ καὶ εἴδεσιν.* Compare Bonitz in his note on p. 1070, a. 33.

The general doctrine laid down by Aristotle, Metaphys. N. p. 1087, b. 34, seq., about the universality of *μέτρον* as pervading all the Categories, is analogous to the passage above referred to in the Politicus of Plato, and implies the Relativity involved more or less in all predicates.

[b] Aristot. Metaph. N. p. 1088, a. 29: *σημεῖον δὲ ὅτι ἥκιστα οὐσία τις καὶ ὄν τι τὸ πρός τι τὸ μόνον μὴ εἶναι γένεσιν αὐτοῦ μηδὲ φθορὰν μηδὲ κίνησιν, ὥσπερ κατὰ τὸ ποσὸν αὔξησις καὶ φθίσις, κατὰ τὸ ποιὸν ἀλλοίωσις, κατὰ τόπον φορά, κατὰ τὴν οὐσίαν ἡ ἁπλῆ γένεσις καὶ φθορά.* Compare K. p. 1068, a. 9: *ἀνάγκη τρεῖς εἶναι κινήσεις, ποιοῦ, ποσοῦ, τόπου. κατ' οὐσίαν δ' οὔ, διὰ τὸ μηθὲν εἶναι οὐσίᾳ ἐναντίον, οὐδὲ τοῦ πρός τι.* Also Physica, v. p. 225, b. 11: *ἐνδέχεται γὰρ θατέρου μεταβάλλοντος ἀληθεύεσθαι θάτερον μηδὲν μεταβάλλον.* See about this passage Bonitz and Schwegler's notes on Metaphys. p. 1068.

[c] Hobbes observes (First Philosophy, part ii. ch. xi. 6): "But we must not so think of Relation as if it were an accident differing from all the other accidents of the relative; but one of them, namely, that by which the comparison is made. For example, the likeness of one white to another white, or its unlikeness to black,

the Subject. The term *substratum* designates not an absolute or a *per se*, but a *Correlatum* to certain *superstrata*, determined or undetermined: now the *Correlatum* is one of the pair implicated directly or indirectly in all Relation; and it is in fact specified by Aristotle as one variety of the Category *Ad Aliquid*.[a] We see therefore that the idea of Relativity attaches to the first of the ten Categories, as well as to the nine others. The inference from these observations is, that Relation or Relativity, understood in the large sense which really belongs to it, ought to be considered rather as an Universal, comprehending and pervading all the Categories, than as a separate Category in itself, co-ordinate with the other nine. It is the condition and characteristic of the work of predication generally; the last analysis of which is into Subject and Predicate, in reciprocal implication with each other. I remark that this was the view taken of it by some well-known Peripatetic commentators of antiquity;[b] by Andronikus, for example, and by Ammonius after him. Plato, though he makes no attempt to draw up a list of Categories, has an incidental passage respecting Relativity;[c] conceiving it in a very extended sense, apparently as belonging more or less to all predicates. Aristotle, though in the Categoriæ he gives a narrower explanation of it, founded upon grammatical rather than real considerations, yet intimates in other places that predicates ranked under the heads of *Qua*[illegible] *Actio*, *Passio*, *Jacere*, &c., may also be looked at as belonging [to] the head of *Ad Aliquid*.[d] This latter, moreover, he him[self]

to the Aristotelian: πρός τι γὰρ τὸ ὑποκείμενον, οὐ πρὸς τὸ ἐν αὐτῷ, ἀλλὰ πρὸς τὸ ποιοῦν εἰς αὐτό, κείμενον. Καὶ τὸ ὑποκείμενον ὑποκεῖται πρὸς τὸ οὐχ ὑποκείμενον· εἰ τοῦτο, πρὸς τὰ τὸ ἔξω, &c. Also Dexippus in the Scholia ad Categor. p. 45, a. 26: τὸ γὰρ ὑποκείμενον κατὰ πρός τι λέγεσθαι ἐδόκει, τινὶ γὰρ ὑποκείμενον.

[a] Aristot. Metaphys. Δ. p. 1020, b. 31, p. 1021, a. 27, seq.

[b] Schol. p. 60, a. 38, Br.; p. 47, b. 26. Xenokrates and Andronikus included all things under the two heads τὸ καθ' αὑτ[ὸ] and τὸ πρός τι. 'Ανδρόνικος μὲν γ[ὰρ] [ὁ] 'Ρόδιος τελευταίαν ἀπονέμει τοῖς [illegible] τάξιν, λέγων αἰτίαν τοιαύτην. [illegible] οἰκείαν ὕλην οὐκ ἔχει· παραφ[illegible] ἔοικεν οἰκείαν φύσιν [illegible] ἀλλὰ περιπλεκομέν[η] [illegible] σιν οἰκείαν ῥίζα[illegible] κατηγορίαι οἰκε[illegible] εἰκότως οὖν τελευτ[illegible] Again, Schol. p. [illegible] καλῶς δέ τινες [illegible] φυάσιν, &c. [illegible]

p. 61, b. 29: ἴσως δὲ καὶ ὅτι τὰ πρ[illegible] τοῖς ἄλλοις γένεσιν ὑφέστηκε, δι[illegible] σὺν αὐτοῖς θεωρεῖται, κἂν μὴ προη[illegible] ἔτυχε μνήμης (and the Scholia [illegible] a. 36, prefixed to Waitz's editi[on]). Also p. 62, a. 37: διὰ ταῦτα [illegible] φυομ[illegible] [ἄ]λλαις κατηγορ[illegible] [illegible] ἤδη νομίζουσι [illegible] [illegible] καὶ κατὰ [illegible] [illegible] Boëthus [illegible] [illegible] τὰ πρό[illegible] [illegible] [Re]public, [illegible] Sophist[illegible] [illegible] 285). [illegible]

declare [illegible] may be
remove [illegible]. Wing,
[illegible] may be no
[illegible] *Correlata;*
[illegible] new word
[illegible] *relatum* of
[illegible] it of a man
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[illegible] say master,
[illegible] e servant is
[illegible] lled *servant*
[illegible] the servant
[illegible] *m* determin-
[illegible] *latum* also;
[illegible] ly know the
[illegible] stotle raises,
[illegible] tance can be
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[illegible] nces; but that
[illegible]: this, however,
[illegible] the connotation
[illegible] the connotation
[illegible] organized body
[illegible] *l;* while in other

[illegible] d by the term *master* is [illegible] tial idea, that which is [illegible] the idea connoted by [illegible] le the connotation of *man* [illegible] ks into the character of an [illegible] accompaniment. The master [illegible] bly not be a man, but a god; [illegible] ian Apollo (Euripid. Ion, 132), [illegible] Corinthian Aphrodité, had each [illegible] laves belonging to them. More- [illegible] ven if every master were a man, [illegible] ualities connoted by *man* are here [illegible] ntal, as not being included in those [illegible] ted by the term master. Compare [illegible] physica, Δ. p. 1025, a. 32; Topica, [illegible] p. 102, a. 18.

[illegible] That Plato was fully sensible to the necessity of precision and appropriateness in designating the *Correlatum* belonging to each *Relatum*, may be seen by the ingenious reasoning in the Platonic Parmenides, pp. 133-134, where δεσπότης and δοῦλος are also the illustrative examples employed.

[illegible] Categor. p. 8, a. 35, b. 20.

treatises, he determines very clearly that these members presuppose, as a *prius naturâ*, the complete organism whereof they are parts, and that the name of each member connotes the performance of, or aptitude to perform, a certain special function: now, such aptitude cannot exist unless the whole organism be held together in co-operative agency, so that if this last condition be wanting, the names, head, eye, foot, can no longer be applied to the separate members, or at least can only be applied equivocally or metaphorically.[a] It would seem therefore that the functioning *something* is here the Essence, and that all its material properties are accidents (συμβεβηκότα).

In the fourth book of the Metaphysica, Aristotle gives an explanation of *Ad Aliquid* different from, and superior to, that which we read in the Categoriæ; treating it, not as one among many distinct Categories, but as implicated with all the Categories, and taking a different character according as it is blended with one or the other—*Essentia, Quantum, Quale, Actio, Passio,* &c.[b] He there, also, enumerates as one of the varieties of *Relata*, what seems to go beyond the limit, or at least beyond the direct denotation, of the Categories; for, having specified, as one variety, *Relata Numero*, and, as another, *Relata secundum actionem et passionem* (τὸ θερμαντικὸν πρὸς τὸ θερμαντόν, &c.), he proceeds to a third variety, such as the *mensurabile* with reference to *mensura*, the *scibile* with reference to *scientia*, the *cogitabile* with reference to *cogitatio;* and in regard to this third variety, he draws a nice distinction. He says that *mensura* and *cogitatio* are *Ad Aliquid,* not because they are themselves related to *mensurabile* and *cogitabile*, but because *mensurabile* and *cogitabile* are related to them.[c] You cannot say (he thinks) that *mensura* is referable

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[a] See Politica, i. p. 1253, a. 18: *καὶ πρότερον δὴ τῇ φύσει πόλις ἢ οἰκία καὶ ἕκαστος ἡμῶν ἐστίν· τὸ λὰρ ὅλον πρότερον ἀναγκαῖον εἶναι τοῦ μέρους· ἀναιρουμένου γὰρ τοῦ ὅλου οὐκ ἔσται ποῦς οὐδὲ χείρ, εἰ μὴ ὁμωνύμως, ὥσπερ εἴ τις λέγει τὴν λιθίνην· διαφθαρεῖσα γὰρ ἔσται τοιαύτη. πάντα δὲ τῷ ἔργῳ ὥρισται καὶ τῇ δυνάμει, ὥστε μηκέτι τοιαῦτα ὄντα οὐ λεκτέον τὰ αὐτὰ εἶναι, ἀλλ' ὁμώνυμα*; also p. 1254, a. 9: *τό τε γὰρ μόριον οὐ μόνον ἄλλου ἐστὶ μόριον, ἀλλὰ καὶ ἄλλου.*

Compare De Animâ, ii. 1, p. 412, b. 20; Meteorologic. iv. p. 390, a. 12.

The doctrine enunciated in these passages is a very important one, in the Aristotelian philosophy.

Trendelenburg (Kategorienlehre, p. 182) touches upon this confusion of the Categories, but faintly and partially.

[b] Metaphys. Δ. p. 1020, b. 27-32. At the same time we must remark, that while Aristotle enumerates *τὸ ὑπέρεχον* and *τὸ ὑπερεχόμενον* under Πρός τι, he had just before (a. 25) ranked *τὸ μέγα καὶ τὸ μικρόν, τὸ μεῖζον καὶ τὸ ἔλαττον,* under the general head Ποσόν—as *ποσοῦ πάθη καθ' αὑτά.*

[c] Metaphys. Δ. p. 1021, a. 26, b. 3; also I. p. 1056, b. 34. Bonitz in his note (p. 262) remarks that the distinction here drawn by Aristotle is not tenable; and I agree with him that it is not. But it coincides with what Aristotle asserts in other words in the Categoriæ; viz., that to be *simul naturâ* is not true of all Relata, but only of the greater part of them; that *τὸ αἰσθητὸν* is *πρότερον τῆς αἰσθήσεως*, and *τὸ ἐπιστητὸν πρότερον τῆς ἐπιστήμης* (Categor. p. 7, b. 23; p. 8,

to the *mensurabile*, or *cogitatio* to the *cogitabile*, because that would be repeating the same word twice over—*mensura est illius cujus est mensura—cogitatio est illius cujus est cogitatio*. So that he regards *mensura* and *cogitatio* as *Correlata*, rather than as *Relata;* while *mensurabile* and *cogitabile* are the *Relata* to them. But in point of fact, the distinction is not important; of the relative pair there may be one which is more properly called the *Correlatum*; yet both are alike relative.

If we compare together the various passages in which Aristotle cites and applies the Ten Categories (not merely in the treatise before us, but also in the Metaphysica, Physica, and elsewhere), we shall see that he cannot keep them apart steadily and constantly; that the same predicate is referred to one head in one place, and to another head in another: what is here spoken of as belonging to *Actio* or *Passio*, will be treated in another place as an instance of *Quale* or *Ad Aliquid*; even the derivative noun ἕξις (*habitus*) does not belong to the Category ἔχειν (*Habere*), but sometimes to *Quale*, sometimes to *Ad Aliquid*.[a] This is inevitable; for the predicates thus differently referred have really several different aspects, and may be classified in one way or another, according as you take them in this or that aspect. Moreover, this same difficulty of finding impassable lines of demarcation would still be felt, even if the Categories, instead of the full list of Ten, were reduced to the smaller list of the four principal Categories—Substance, Quantity, Quality, and Relation; a reduction which has been recommended by commentators on Aristotle as well as by acute logicians of modern times. Even these four cannot be kept clearly apart: the predicates which declare Quantity or Quality must at the same time declare or imply Relation; while the predicates which declare Relation

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10). As I have mentioned before (p. 71 n.), Simplikius, in the Scholia (p. 65, b. 14), points out that Aristotle has not been careful here to observe his own precept of selecting οἰκείως the correlative term. He ought to have stated the potential as correlating with the potential, the actual with the actual. If he had done this, the συνύπαρξις τῶν πρός τι would have been seen to be true in all cases. Eudorus noticed a similar inadvertence of Aristotle in the case of πτέρον and πτερωτόν (Schol. 63, a. 43). See 'Plato and the Other Companions of Sokrates,' vol. ii. p. 330, note[x].

I transcribe a curious passage of Leibnitz, bearing on the same question:—"On réplique maintenant, que la vérité du mouvement est indépendante de l'observation: et qu'un vaisseau peut avancer, sans que celui qui est dedans s'en aperçoive. Je réponds, que le mouvement est indépendant de l'observation: mais qu'il *n'est point indépendant de l'observabilité*. Il n'y a point de mouvement, quand il n'y a point de changement *observable*. Et même quand il n'y a point de changement observable, il n'y a point de changement du tout. Le contraire est fondé sur la supposition d'un Espace réel absolu, que j'ai réfuté demonstrativement par le principe du besoin d'une Raison suffisante des choses." (Correspondence with Clarke, p. 770. Erdmann's edition.)

[a] Aristot. Categor. p. 6, b. 2; p. 8, b. 27.

must also imply the *fundamentum* either of Quantity or of Quality.[a]

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[a] See Trendelenburg, Kategorienlehre, p. 117, seq.

The remarks made by Mr. John Stuart Mill (in his System of Logic, book i. ch. iii.) upon the Aristotelian Categories, and the enlarged philosophical arrangement which he introduces in their place, well deserve to be studied. After enumerating the ten Predicaments, Mr. Mill says:—"It is a mere catalogue of the distinctions rudely marked out by the language of familiar life, with little or no attempt to penetrate, by philosophic analysis, to the *rationale* even of these common distinctions. Such an analysis would have shewn the enumeration to be both redundant and defective. Some objects are omitted, and others repeated several times under different heads." (Compare the remarks of the Stoic commentators, and Porphyry, Schol. p. 48, b. 10 Br.: *ἀθετοῦντες τὴν διαίρεσιν ὡς πολλὰ παριεῖσαν καὶ μὴ περιλαμβάνουσαν, ἢ καὶ πάλιν πλεονάζουσαν*. And Aristotle himself observes that the same predicates might be ranked often under more than one head.) "That could not be a very comprehensive view of the nature of Relation, which could exclude action, passivity, and local situation from that category. The same objection applies to the categories Quando (or position in time), and Ubi (or position in space); *while the distinction between the latter and Situs* (Κεῖσθαι) *is merely verbal.* The incongruity of erecting into a *summum genus* the tenth Category is manifest. On the other hand, the enumeration takes no notice of any thing but Substances and Attributes. In what Category are we to place sensations, or any other feelings and states of mind? as hope, joy, fear; sound, smell, taste; pain, pleasure; thought, judgment, conception, and the like? Probably all these would have been placed by the Aristotelian school in the Categories of Actio and Passio; and the relation of such of them as are active, to their objects, and of such of them as are passive, to their causes, would have been rightly so placed; but the things themselves, the feelings or states of mind, wrongly. Feelings, or states of consciousness, are assuredly to be counted among realities; but they cannot be reckoned either among substances or among attributes."

Among the many deficiencies of the Aristotelian Categories, as a complete catalogue, there is none more glaring than the imperfect conception of Πρός τι (the Relative), which Mr. Mill here points out. But the Category Κεῖσθαι (badly translated by commentators *Situs*, from which Aristotle expressly distinguishes it, Categor. p. 6, b. 12: *τὸ δὲ ἀνακεῖσθαι ἢ ἑστάναι ἢ καθῆσθαι αὐτὰ μὲν οὐκ εἰσὶ θέσεις*) appears to be hardly open to Mr. Mill's remark, that it is only verbally distinguished from Ποῦ, *Ubi*. Κεῖσθαι is intended to mean *posture*, *attitude*, &c. It is a reply to the question, In what posture is Sokrates? Answer.—He is lying down, standing upright, kneeling, *πὺξ προτείνων*, &c. This is quite different from the question, Where is Sokrates? In the market-place, in the palæstra, &c. Κεῖσθαι (as Aristotle himself admits, Categ. p. 6, b. 12) is not easily distinguished from Πρός τι: for the abstract and general word *θέσις* (*position*) is reckoned by Aristotle under Πρός τι, though the *paronyma ἀνακεῖσθαι, ἑστάναι, καθῆσθαι*, are affirmed not to be *θέσεις*, but to come under the separate Category Κεῖσθαι. But Κεῖσθαι is clearly distinguishable from Ποῦ *Ubi*.

Again, to Mr. Mill's question, "In what Category are we to place sensations or other states of mind—hope, fear, sound, smell, pain, pleasure, thought, judgment," &c.? Aristotle would have replied (I apprehend) that they come under the Category either of *Quale* or of *Pati*—Ποιότητες or Πάθη. They are attributes or modifications of Man, Kallias, Sokrates, &c. If the condition of which we speak be temporary or transitory, it is a *πάθος* and we speak of Kallias as *πάσχων τι* if it be a durable disposition or capacity likely to pass into repeated manifestations, it is *ποιότης*, and we describe Kallias as *ποιός τις* (Categ. p. 9, a. 28-p. 10 a. 9). This equally applies to mental and bodily conditions (*ὁμοίως δὲ τούτοις καὶ κατὰ τὴν ψυχὴν παθητικαὶ ποιότητες καὶ πάθη λέγεται.*—p. 9, b. 33). The line is dubious and difficult between *πάθος* and *ποιότης*, but one or other of the two will comprehend all the mental states indicated by Mr. Mill. Aristotle would not have admitted that "feelings are to be counted among realities," except as they are now or may be the feelings of Kallias, Sokrates, or some other *Hic Aliquis*—one or many. He would consider feelings as attributes belonging to these Πρῶται Οὐσίαι; and so in fact Mr. Mill himself considers them (p. 83), after having specified the Mind (distinguished from Body or external object) as the Substance to which they belong.

Mr. Mill's classification of Nameab

The most capital distinction, however, which is to be found among the Categories is that of Essence or Substance from all the rest. This is sometimes announced as having a standing *per se;* as not only logically distinguishable, but really separable from the other nine, if we preserve the Aristotelian list of ten,[a] or from the other three, if we prefer the reduced list of four. But such real separation cannot be maintained. The *Prima Essentia* (we are told) is indispensable as a Subject, but cannot appear as Predicate; while all the rest can and do so appear. Now we see that this definition is founded upon the function enacted by each of them in predication, and therefore presupposes the fact of predication, which is in itself a Relation. The Category of Relation is thus implied, in declaring what the First Essence is, together with some *predicabilia* as correlates, though it is not yet specified what the *predicabilia* are. But besides this, the distinction drawn by Aristotle, between First and Second Essence or Substance, abolishes the marked line of separation between Substance and Quality, making the former shade down into the latter. The distinction recognizes a more or less in Substance, which graduation Aristotle expressly points out, stating that the Species is *more* Substance or Essence, and the Genus *less* so. We see thus that he did not conceive Substance (apart from attributes) according to the modern view, as that which exists *without* the mind (excluding *within* the mind or *relation* to the mind); for in that there can be no graduation. That which is without the mind, must also be within; and that which is within must also be without; the subject and the object correlating. This implication of within and without understood, there is then room for graduation, according as the one or the other aspect may be more or less prominent. Aristotle, in point of fact, confines himself to the mental or logical work of predication, to the conditions thereof, and to the component terms whereby the mind accomplishes that act. When he speaks of the First Essence or Substance, without the Second, all that he

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Things is much better and more complete than the Aristotelian Categories, inasmuch as it brings into full prominence the distinction between the subjective and objective points of view, and, likewise, the all-pervading principle of Relativity, which implicates the two; whereas, Aristotle either confuses the one with the other, or conceives them narrowly and inadequately. But we cannot say, I think, that Aristotle, in the Categories, assigns no room for the mental states or elements. He has a place for them, though he treats them altogether objectively. He takes account of *himself* only as an object—as one among the πρῶται οὐσίαι, or individuals, along with Sokrates and Kallias.

[a] Aristotle sometimes speaks of it as χωριστόν, the other Categories being not χωριστά (Metaphys. Z. p. 1028, a. 34). It is not easy, however, always to distinguish whether he means by the term χωριστὰ "*sejuncta re*, or *sejuncta notione solâ.*" See Bonitz ad Metaphysic. (Δ. p. 1017), p. 244.

can say about it positively is to call it *Unum numero* and indivisible :[a] (even thus, he is compelled to introduce unity, measure, and number,) all of which belong to the two Categories of Quantity and Relation; and yet still the First Essence or Substance remains indeterminate. We only begin to determine it when we call it by the name of the Second Substance or Essence; which name connotes certain attributes, the attributes thus connoted being of the essence of the Species; that is, unless they be present, no individual would be considered as belonging to the Species, or would be called by the specific name.[b] When we thus, however, introduce attributes, we find ourselves not merely in the Category of *Substantia* (*Secunda*), but also in that of *Qualitas*. The boundary between *Substantia* and *Qualitas* disappears; the latter being partially contained in the former. (The Second Substance or Essence includes attributes or Qualities belonging to the Essence. In fact, the Second Substance or Essence, when distinguished from the First, is both here and elsewhere characterized by Aristotle, as being not Substance at all, but Quality)[c] though when considered as being in implication with the First, it takes on the nature of Substance and becomes substantial or essential Quality. The Differentia belongs thus both to Substance and to Quality (*quale quid*), making up as complement that which is designated by the specific name.[d]

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[a] Categor. p. 3, b. 12: *ἄτομον γὰρ καὶ ἓν ἀριθμῷ τὸ δηλούμενόν ἐστιν.* Compare Metaphysic. N. p. 1087, b. 33; p. 1088, a. 10.

[b] Hobbes says:—"Now that accident (*i.e.* attribute) for which we give a certain name to any body, or the accident which denominates its Subject, is commonly called the Essence thereof; as rationality is the essence of a man, whiteness of any white thing, and extension the essence of a body" (Hobbes, Philosophy, ch. viii. s. 23). This topic will be found discussed, most completely and philosophically, in Mr. John Stuart Mill's System of Logic, Book I. ch. vi. ss. 2-3; ch. vii. s. 5.

[c] Categor. p. 3, b. 13: *ἐπὶ δὲ τῶν δευτέρων οὐσιῶν φαίνεται μὲν ὁμοίως τῷ σχήματι τῆς προσηγορίας τόδε τι σημαίνειν, ὅταν εἴπῃ ἄνθρωπον ἢ ζῶον, οὐ μὴν ἀληθές γε, ἀλλὰ μᾶλλον ποιόν τι σημαίνει—ποιὰν γάρ τινα οὐσίαν σημαίνει* (b. 20).

Metaphysic. Z. p. 1038, b. 35: *φανερὸν ὅτι οὐθὲν τῶν καθόλου ὑπαρχόντων οὐσία ἐστί, καὶ ὅτι οὐθὲν σημαίνει τῶν κοινῇ κατηγορουμένων τόδε τι, ἀλλὰ τοιόνδε.* Compare Metaphys. M. p. 1087, a. 1; Sophistic. Elench. p. 178, b. 37; 179, a. 9.

That which is called *πρώτη οὐσία* in the Categoriæ is called *τρίτη οὐσία* in Metaphys. H. p. 1043, a. 18. In Ethic. Nikom. Z. p. 1143, a. 32, seq., the *generalissima* are called *πρῶτα*, and particulars are called *ἔσχατα*. Zell observes in his commentary (p. 224), "*τὰ ἔσχατα* sunt res singulæ, quæ et ipsæ sunt extremæ, ratione mentis nostræ, ab universis ad singula delabentis." Patricius remarks upon the different sense of the terms *Πρώτη Οὐσία* in the Categoriæ and in the De Interpretatione (Discuss. Peripatetic. p. 21).

[d] Metaphysic. Δ. p. 1020, b. 13: *σχεδὸν δὴ κατὰ δύο τρόπους λέγοιτ' ἂν τὸ ποιόν, καὶ τούτων ἕνα τὸν κυριώτατον· πρώτη μὲν γὰρ ποιότης ἡ τῆς οὐσίας διαφορά.* Compare Physic. v. p. 226, a. 27. See Trendelenburg, Kategorienlehre, pp. 56, 93.

The remarks of the different expositors (contained in Scholia, pp. 52, 53, 54, Brand.), are interesting upon the ambiguous position of Differentia, in regard to Substance and Quality. It comes out to be Neither and Both—*οὐδέτερα καὶ ἀμφότερα* (Plato, Euthydemus, p. 300 C.). Dexippus and Porphyry called it something intermediate between *οὐσία* and *ποιότης*, or between *οὐσία* and *συμβεβηκός*

We see, accordingly, that neither is the line of demarcation between the Category of Substance or Essence and the other Categories so impassable, nor the separability of it from the others so marked as some thinkers contend. Substance is represented by Aristotle as admitting of more and less, and as graduating by successive steps down to the other Categories; moreover, neither in its complete manifestation (as First Substance), nor in its incomplete manifestation (as Second Substance), can it be explained or understood without calling in the other Categories of Quantity, Quality, and Relation. It does not correspond to the definition of *Substantia* given by Spinoza—"*quod in se est et per se concipitur.*" It can no more be conceived or described without some of the other Categories, than they can be conceived or described without it. Aristotle defines it by four characteristics, two negative, and two positive. It cannot be predicated of a Subject: it cannot inhere in a Subject: it is, at bottom, the Subiect of all Predicates: it is *Unum numero* and indivisible.[a] Not one of these four determinations can be conceived or understood, unless we have in our minds the idea of other Categories and its relation to them. Substance is known only as the Subject of predicates, that is, relatively to them; as they also are known relatively to it. Without the Category of Relation, we can no more understand what is meant by a Subject than what is meant by a Predicate. The Category of Substance, as laid out by Aristotle, neither exists by itself, nor can be conceived by itself, without that of Relation and the generic notion of Predicate.[b] All three lie

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[a] Categor. p. 2, a. 14, b. 4; p. 3, b. 12.

[b] Aristotle gives an explanation of what he means by καθ' αὑτό—καθ' αὑτά, in the Analytic. Post. I. iv. p. 73, a. 34, b. 13. According to that explanation it will be necessary to include in τὸ καθ' αὑτὸ of the Category Οὐσία, all that is necessary to make the definition or explanation of that Category understood.

M. Barthélemy St. Hilaire, in the valuable Preface introducing his translation of the Organon, gives what I think a just view of the Categories generally, and especially of πρώτη οὐσία, as simply naming (*i.e.* giving a proper name), and doing nothing more. I transcribe the passage, merely noting that the terms *anterior* and *posterior* can mean nothing more than *logical* anteriority and posteriority.

"Mais comment classer les mots?—C'est à la réalité seule qu'il faut le demander; à la réalité dont le langage n'est que le réflet, dont les mots ne sont que le symbole. Que nous présente la réalité? Des individus, rien que des individus, existant par eux-mêmes, et se groupant, par leurs ressemblances et leurs différences, sous des espèces et sous des genres. Ainsi donc, en étudiant l'individu, l'être individuel, et en analysant avec exactitude tout ce qu'il est possible d'en dire en tant qu'être, on aura les classes les plus générales des mots; les catégories, ou pour prendre le terme français, les attributions, qu'il est possible de lui appliquer. Voilà tout le fondement des Catégories.—Ce n'est pas du reste, une classification des choses à la manière de celles de l'histoire naturelle, qu'il s'agit de faire en logique: c'est une simple énumération de tous les points de vue, d'ou l'esprit peut considérer les choses, non pas, il est vrai, par rapport à l'esprit lui-même, mais par rapport à leur réalité et à leurs appellations.—Aristote dis-

the Subject. The term *substratum* designates not an absolute or a *per se*, but a *Correlatum* to certain *superstrata*, determined or undetermined: now the *Correlatum* is one of the pair implicated directly or indirectly in all Relation; and it is in fact specified by Aristotle as one variety of the Category *Ad Aliquid*.[a] We see therefore that the idea of Relativity attaches to the first of the ten Categories, as well as to the nine others. The inference from these observations is, that Relation or Relativity, understood in the large sense which really belongs to it, ought to be considered rather as an Universal, comprehending and pervading all the Categories, than as a separate Category in itself, co-ordinate with the other nine. It is the condition and characteristic of the work of predication generally; the last analysis of which is into Subject and Predicate, in reciprocal implication with each other. I remark that this was the view taken of it by some well-known Peripatetic commentators of antiquity;[b] by Andronikus, for example, and by Ammonius after him. Plato, though he makes no attempt to draw up a list of Categories, has an incidental passage respecting Relativity;[c] conceiving it in a very extended sense, apparently as belonging more or less to all predicates. Aristotle, though in the Categoriæ he gives a narrower explanation of it, founded upon grammatical rather than real considerations, yet intimates in other places that predicates ranked under the heads of *Quale*, *Actio*, *Passio*, *Jacere*, &c., may also be looked at as belonging to the head of *Ad Aliquid*.[d] This latter, moreover, he himsel

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to the Aristotelian: *πρός τι γὰρ τὸ ὑποκείμενον, οὐ πρὸς τὸ ἐν αὐτῷ, ἀλλὰ πρὸς τὸ ποιοῦν εἰς αὐτό, κείμενον. Καὶ τὸ ὑποκείμενον ὑποκεῖται πρὸς τὸ οὐχ ὑποκείμενον· εἰ τοῦτο, πρὸς τὰ τὸ ἔξω*, &c. Also Dexippus in the Scholia ad Categor. p. 45, a. 26: *τὸ γὰρ ὑποκείμενον κατὰ πρός τι λέγεσθαι ἐδόκει, τινὶ γὰρ ὑποκείμενον.*

[a] Aristot. Metaphys. Δ. p. 1020, b. 31, p. 1021, a. 27, seq.

[b] Schol. p. 60, a. 38, Br.; p. 47, b. 26. Xenokrates and Andronikus included all things under the two heads *τὸ καθ' αὑτὸ* and *τὸ πρός τι*. *'Ανδρόνικος μὲν γὰρ ὁ 'Ρόδιος τελευταίαν ἀπονέμει τοῖς πρός τι τάξιν, λέγων αἰτίαν τοιαύτην. τὰ πρός τι οἰκείαν ὕλην οὐκ ἔχει· παραφυάδι γὰρ ἔοικεν οἰκείαν φύσιν μὴ ἐχούσῃ ἀλλὰ περιπλεκομένῃ τοῖς ἔχουσιν οἰκείαν ῥίζαν· αἱ δὲ ἔννεα κατηγορίαι οἰκείαν ὕλην ἔχουσιν· εἰκότως οὖν τελευταίαν ὤφειλον ἔχειν τάξιν.* Again, Schol. p. 60, a. 24 (Ammonius): *καλῶς δέ τινες ἀπεικάζουσι τὰ πρός τι παραφυάσιν*, &c. Also p. 59, b. 41; p. 49, a. 47; p. 61, b. 29: *ἴσως δὲ καὶ ὅτι τὰ πρός τι ἐ τοῖς ἄλλοις γένεσιν ὑφέστηκε, διὰ τοῦτ σὺν αὐτοῖς θεωρεῖται, κἂν μὴ προηγουμέν ἔτυχε μνήμης* (and the Scholia ad p. 6 a. 36, prefixed to Waitz's edition, p. 33 Also p. 62, a. 37: *διὰ ταῦτα δὲ ὡς παρα φυομένην ταῖς ἄλλαις κατηγορίαις τὴν τ πρός τι ἐπεισοδιώδη νομίζουσι, καίτοι προ γουμένην οὖσαν καὶ κατὰ διαφορὰν οἰκεί θεωρουμένην.* Boëthus had written a entire book upon *τὰ πρός τι*, Schol. p. 6 b. 9.

[c] Plato, Republic, iv. 437 C. to 439 (compare also Sophistes, p. 255 C., ar Politicus, p. 285). *Καὶ τὰ πλείω δὴ πρ τὰ ἐλάττω καὶ τὰ διπλάσια πρὸς τὰ ἡμίσ καὶ πάντα τὰ τοιαῦτα, καὶ αὖ βαρύτερα πρ κουφότερα καὶ θάττω πρὸς βραδύτερα, κ ἔτι γε τὰ θερμὰ πρὸς τὰ ψυχ καὶ πάντα τὰ τούτοις ὅμοια, ἆρ' οὐχ οὕτ ἔχει;* (438 C.)

[d] See Metaphysic. Δ. p. 1020, b. p. 1021, b. 10. Trendelenburg observ (Gesch. der Kategorienlehre, pp. 1 122, seq.) how much more the descripti

declares elsewhere to be *Ens* in the lowest degree, farther removed from the *Prima Essentia* than any of the other Categories; to be more in the nature of an appendage to some of them, especially to *Quantum* and *Quale*;[a] and to presuppose, not only the *Prima Essentia* (which all the nine later Categories presuppose), but also one or more of the others, indicating the particular mode of comparison or Relativity in each case affirmed. Thus, under one aspect, Relation or Relativity may be said to stand *prius naturâ*, and to come first in order before all the Categories, inasmuch as it is implicated with the whole business of predication (which those Categories are intended to resolve into its elements), and belongs not less to the mode of conceiving what we call the Subject, than to the mode of conceiving what we call its Predicates, each and all. Under another aspect, Relativity may be said to stand last in order among the Categories—even to come after the adverbial Categories *Ubi et Quando*; because its *locus standi* is dim and doubtful, and because every one of the subordinate predicates belonging to it may be seen to belong to one or other of the remaining Categories also. Aristotle remarks that the Category *Ad Aliquid* has no peculiar and definite mode of generation corresponding to it, in the manner that Increase and Diminution belong to *Quantum*, Change to *Quale*, Generation, simple and absolute, to Essence or Substance.[b] New relations may become predicable of a thing, without any change in the thing itself, but simply by changes in other things.[c]

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given of *πρός τι* in the Categoriæ is determined by verbal or grammatical considerations, than in the Metaphysica and other treatises of Aristotle.

[a] See Ethic. Nikomach. i. p. 1096, a. 20: *τὸ δὲ καθ' αὑτὸ καὶ ἡ οὐσία πρότερον τῇ φύσει τοῦ πρός τι· παραφυάδι γὰρ τοῦτ' ἔοικε καὶ συμβεβηκότι τοῦ ὄντος, ὥστε οὐκ ἂν εἴη κοινή τις ἐπὶ τούτων ἰδέα.* (The expression *παραφυάδι* was copied by Andronikus; see a note on the preceding page.) Metaphys. N. p. 1088, a. 22-26: *τὸ δὲ πρός τι πάντων ἥκιστα φύσις τις ἢ οὐσία τῶν κατηγοριῶν ἐστί, καὶ ὑστέρα τοῦ ποιοῦ καὶ ποσοῦ· καὶ πάθος τι τοῦ ποσοῦ τὸ πρός τι, ὥσπερ ἐλέχθη, ἀλλ' οὐχ ὕλη, εἴ τι ἕτερον καὶ τῷ ὅλως κοινῷ πρός τι καὶ τοῖς μέρεσιν αὐτοῦ καὶ εἴδεσιν.* Compare Bonitz in his note on p. 1070, a. 33.

The general doctrine laid down by Aristotle, Metaphys. N. p. 1087, b. 34, seq., about the universality of *μέτρον* as pervading all the Categories, is analogous to the passage above referred to in the Politicus of Plato, and implies the Relativity involved more or less in all predicates.

[b] Aristot. Metaph. N. p. 1088, a. 29: *σημεῖον δὲ ὅτι ἥκιστα οὐσία τις καὶ ὄν τι τὸ πρός τι τὸ μόνον μὴ εἶναι γένεσιν αὐτοῦ μηδὲ φθορὰν μηδὲ κίνησιν, ὥσπερ κατὰ τὸ ποσὸν αὔξησις καὶ φθίσις, κατὰ τὸ ποιὸν ἀλλοίωσις, κατὰ τόπον φορά, κατὰ τὴν οὐσίαν ἡ ἁπλῆ γένεσις καὶ φθορά.* Compare K. p. 1068, a. 9: *ἀνάγκη τρεῖς εἶναι κινήσεις, ποιοῦ, ποσοῦ, τόπου. κατ' οὐσίαν δ' οὔ, διὰ τὸ μηθὲν εἶναι οὐσίᾳ ἐναντίον, οὐδὲ τοῦ πρός τι.* Also Physica, v. p. 225, b. 11: *ἐνδέχεται γὰρ θατέρου μεταβάλλοντος ἀληθεύεσθαι θάτερον μηδὲν μετάβαλλον.* See about this passage Bonitz and Schwegler's notes on Metaphys. p. 1068.

[c] Hobbes observes (First Philosophy, part ii. ch. xi. 6): "But we must not so think of Relation as if it were an accident differing from all the other accidents of the relative; but one of them, namely, that by which the comparison is made. For example, the likeness of one white to another white, or its unlikeness to black,

Those among the Aristotelian commentators who denied the title of *Ad Aliquid* to a place among the Categories or *Summa Genera* of predicates, might support their views from passages where Aristotle ranks the Genus as a *Relatum*, though he at the same time declares that the Species under it are not *Relata*. Thus *scientia* is declared by him to be a *Relatum;* because it must be *of something—alicujus scibilis;* while the *something* thus implied is not specified.[a] But (*scientia*) *musica, grammatica, medica,* &c., are declared not to be *Relata;* the indeterminate *something* being there determined, and bound up in one word with the predication of Relativity. Now the truth is that both are alike *Relata,* though both also belong to the Category of Quality; a man is called *Talis* from being *sciens*, as well as from being *grammaticus*. Again, he gives as illustrative examples of the Category *Ad Aliquid,* the adjectives double, triple. But he ranks in a different Category (that of *Quantum*) the adjectives bicubital, tricubital (διπῆχυς, τριπῆχυς). It is plain that the two last of these predicates are species under the two first, and that all four predicates are alike relative, under any real definition that can be given of Relativity, though all four belong also to the Category of *Quantum*. Yet Aristotle does not recognize any predicates as belonging to *Ad Aliquid,* except such as are logically and grammatically elliptical; that is, such as do not include in themselves the specification of the Correlate, but require to be supplemented by an additional word in the genitive or dative case, specifying the latter. As we have already seen, he lays it down generally, that all *Relata* (or *Ad Aliquid*) imply a *Correlatum;* and he prescribes that when the *Correlatum* is indicated, care shall be taken to designate it by a precise and specific term, not of wider import than the *Relatum,* but specially reciprocating therewith: thus he regards *ala* (a wing) as *Ad Aliquid,* but when you specify its correlate in order to speak with propriety (οἰκείως), you must describe it as *al*[…]

is the same accident with its whiteness." This may be true about the relations Like and Unlike (see Mr. John Stuart Mill, Logic, ch. iii. p. 80, 6th ed.) But, in Relations generally, the *fundamentum* may be logically distinguished from the Relation itself.

Aristotle makes the same remarks upon τὸ συμβεβηκὸς as upon τὸ πρός τι:—That it verges upon Non-Ens; and that it has no special mode of being generated or destroyed. φαίνεται γὰρ τὸ συμβεβηκὸς ἐγγύς τι τοῦ μὴ ὄντος· τῶν μὲν γὰρ ἄλλον τρόπον ὄντων ἔστι γένεσις καὶ φθορά, τῶν δὲ κατὰ συμβεβηκὸς οὐκ ἔστιν. (Metaphys. E. p. 1026, b. 21.)

[a] Categor. p. 6, b. 12, p. 11, a. 24; Topic. iv. p. 124, b. 16. Compare also Topica, iv. p. 121, a. 1, and the Scholia thereupon, p. 278, b. 12-16, Br.; in which Scholia Alexander feels the difficulty of enrolling a generic term as πρός τι, while the specific terms comprised under it are not πρός τι; and removes the difficulty by suggesting that ἐπιστήμη may be at once both ποιότης and πρός τι; and that as ποιότης (not as πρός τι) it may be the genus including μουσικὴ and γεωμετρία, which are not πρός τι, but ποιότητες.

[b] Categor. p. 6, b. 30, p. 7, b. 12.

alati (not as *ala avis*), in order that the *Correlatum* may be strictly co-extensive and reciprocating with the *Relatum*. Wing, head, hand, &c., are thus *Ad Aliquid*, though there may be no received word in the language to express their exact *Correlata;* and though you may find it necessary to coin a new word expressly for the purpose.[a] In specifying the *Correlatum* of servant, you must say, servant of *a master*, not servant of a man or of a biped; both of which are in this case accompaniments or accidents of the master, being still accidents, though they may be in fact constantly conjoined. Unless you say master, the terms will not reciprocate; take away master, the servant is no longer to be found, though the man who was called *servant* is still there; but take away man or biped, and the servant may still continue.[b] You cannot know the *Relatum* determinately or accurately, unless you know the *Correlatum* also; without the knowledge of the latter, you can only know the former in a vague and indefinite manner.[c] Aristotle raises, also, the question whether any Essence or Substance can be described as *Ad Aliquid*.[d] He inclines to the negative, though not decisively pronouncing. He seems to think that Simo and Davus, when called men, are Essences or Substances; but that when called master and slave, they are not so; this, however, is surprising, when he had just before spoken of the connotation of man as accidents (*συμβεβηκότα*) belonging to the connotation of master. He speaks of the members of an organized body (wing, head, foot) as examples of *Ad Aliquid;* while in other

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[a] Categor. p. 7, a. 5. *ἐνίοτε δὲ ὀνοματοποιεῖν ἴσως ἀναγκαῖον, ἐὰν μὴ κείμενον ᾖ ὄνομα πρὸς ὃ οἰκείως ἂν ἀποδοθείη.*

[b] Categor. p. 7, a. 31. *ἔτι δ' ἐὰν μέν τι οἰκείως ἀποδιδόμενον ᾖ πρὸς ὃ λέγεται, πάντων περιαιρουμένων τῶν ἄλλων ὅσα συμβεβηκότα ἐστί, καταλειπομένου δὲ μόνου τούτου πρὸς ὃ ἀπεδόθη οἰκείως, ἀεὶ πρὸς αὐτὸ ῥηθήσεται, οἷον ὁ δοῦλος ἐὰν πρὸς δεσπότην λέγηται, περιαιρουμένων τῶν ἄλλων ἁπάντων ὅσα συμβεβηκότα ἐστὶ τῷ δεσπότῃ, οἷον τὸ δίποδι εἶναι καὶ τὸ ἐπιστήμης δεκτικῷ καὶ τὸ ἀνθρώπῳ, καταλειπομένου δὲ μόνου τοῦ δεσπότην εἶναι, ἀεὶ ὁ δοῦλος πρὸς αὐτὸ ῥηθήσεται.*

This is not only just and useful in regard to accuracy of predication, but deserves attention also in another point of view. In general, it would be said that *man* and *biped* belonged to the Essence (*οὐσία*); and the *being a master* to the Accidents or Accompaniments (*συμβεβηκότα*). Here the case is reversed; man and biped are the accidents or accompaniments; master is the Essence. What is connoted by the term *master* is here the essential idea, that which is bound up with the idea connoted by *servant;* while the connotation of *man* or *biped* sinks into the character of an accessory or accompaniment. The master might possibly not be a man, but a god; the Delphian Apollo (Euripid. Ion, 132), and the Corinthian Aphrodité, had each many slaves belonging to them. Moreover, even if every master were a man, the qualities connoted by *man* are here accidental, as not being included in those connoted by the term master. Compare Metaphysica, Δ. p. 1025, a. 32; Topica, i. p. 102, a. 18.

[c] That Plato was fully sensible to the necessity of precision and appropriateness in designating the *Correlatum* belonging to each *Relatum*, may be seen by the ingenious reasoning in the Platonic Parmenides, pp. 133-134, where *δεσπότης* and *δοῦλος* are also the illustrative examples employed.

[d] Categor. p. 8, a. 35, b. 20.

treatises, he determines very clearly that these members presuppose, as a *prius naturâ*, the complete organism whereof they are parts, and that the name of each member connotes the performance of, or aptitude to perform, a certain special function: now, such aptitude cannot exist unless the whole organism be held together in co-operative agency, so that if this last condition be wanting, the names, head, eye, foot, can no longer be applied to the separate members, or at least can only be applied equivocally or metaphorically.[a] It would seem therefore that the functioning *something* is here the Essence, and that all its material properties are accidents (*συμβεβηκότα*).

In the fourth book of the Metaphysica, Aristotle gives an explanation of *Ad Aliquid* different from, and superior to, that which we read in the Categoriæ; treating it, not as one among many distinct Categories, but as implicated with all the Categories, and taking a different character according as it is blended with one or the other—*Essentia, Quantum, Quale, Actio, Passio,* &c.[b] He there, also, enumerates as one of the varieties of *Relata*, what seems to go beyond the limit, or at least beyond the direct denotation, of the Categories; for, having specified, as one variety, *Relata Numero*, and, as another, *Relata secundum actionem et passionem* (τὸ θερμαντικὸν πρὸς τὸ θερμαντόν, &c.), he proceeds to a third variety, such as the *mensurabile* with reference to *mensura*, the *scibile* with reference to *scientia*, the *cogitabile* with reference to *cogitatio;* and in regard to this third variety, he draws a nice distinction. He says that *mensura* and *cogitatio* are *Ad Aliquid*, not because they are themselves related to *mensurabile* and *cogitabile*, but because *mensurabile* and *cogitabile* are related to them.[c] You cannot say (he thinks) that *mensura* is referable

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[a] See Politica, i. p. 1253, a. 18: *καὶ πρότερον δὴ τῇ φύσει πόλις ἢ οἰκία καὶ ἕκαστος ἡμῶν ἐστίν· τὸ λὰρ ὅλον πρότερον ἀναγκαῖον εἶναι τοῦ μέρους· ἀναιρουμένου γὰρ τοῦ ὅλου οὐκ ἔσται ποῦς οὐδὲ χείρ, εἰ μὴ ὁμωνύμως, ὥσπερ εἴ τις λέγει τὴν λιθίνην· διαφθαρεῖσα γὰρ ἔσται τοιαύτη. πάντα δὲ τῷ ἔργῳ ὥρισται καὶ τῇ δυνάμει, ὥστε μηκέτι τοιαῦτα ὄντα οὐ λεκτέον τὰ αὐτὰ εἶναι, ἀλλ' ὁμώνυμα*; also p. 1254, a. 9: *τό τε γὰρ μόριον οὐ μόνον ἄλλου ἐστὶ μόριον, ἀλλὰ καὶ ἄλλου.*

Compare De Animâ, ii. 1, p. 412, b. 20; Meteorologic. iv. p. 390, a. 12.

The doctrine enunciated in these passages is a very important one, in the Aristotelian philosophy.

Trendelenburg (Kategorienlehre, p. 182) touches upon this confusion of the Categories, but faintly and partially.

[b] Metaphys. Δ. p. 1020, b. 27-32. At the same time we must remark, that while Aristotle enumerates *τὸ ὑπέρεχον* and *τὸ ὑπερεχόμενον* under *Πρός τι*, he had just before (a. 25) ranked *τὸ μέγα καὶ τὸ μικρόν, τὸ μεῖζον καὶ τὸ ἔλαττον*, under the general head *Ποσόν*—as *ποσοῦ πάθη καθ' αὑτά.*

[c] Metaphys. Δ. p. 1021, a. 26, b. 3; also I. p. 1056, b. 34. Bonitz in his note (p. 262) remarks that the distinction here drawn by Aristotle is not tenable; and I agree with him that it is not. But it coincides with what Aristotle asserts in other words in the Categoriæ; viz., that to be *simul naturâ* is not true of all Relata, but only of the greater part of them; that *τὸ αἰσθητὸν* is *πρότερον τῆς αἰσθήσεως*, and *τὸ ἐπιστητὸν πρότερον τῆς ἐπιστήμης* (Categor. p. 7, b. 23; p. 8, a

to the *mensurabile*, or *cogitatio* to the *cogitabile*, because that would be repeating the same word twice over—*mensura est illius cujus est mensura—cogitatio est illius cujus est cogitatio.* So that he regards *mensura* and *cogitatio* as *Correlata*, rather than as *Relata;* while *mensurabile* and *cogitabile* are the *Relata* to them. But in point of fact, the distinction is not important; of the relative pair there may be one which is more properly called the *Correlatum*; yet both are alike relative.

If we compare together the various passages in which Aristotle cites and applies the Ten Categories (not merely in the treatise before us, but also in the Metaphysica, Physica, and elsewhere), we shall see that he cannot keep them apart steadily and constantly; that the same predicate is referred to one head in one place, and to another head in another: what is here spoken of as belonging to *Actio* or *Passio*, will be treated in another place as an instance of *Quale* or *Ad Aliquid*; even the derivative noun ἕξις (*habitus*) does not belong to the Category ἔχειν (*Habere*), but sometimes to *Quale*, sometimes to *Ad Aliquid.*[a] This is inevitable; for the predicates thus differently referred have really several different aspects, and may be classified in one way or another, according as you take them in this or that aspect. Moreover, this same difficulty of finding impassable lines of demarcation would still be felt, even if the Categories, instead of the full list of Ten, were reduced to the smaller list of the four principal Categories—Substance, Quantity, Quality, and Relation; a reduction which has been recommended by commentators on Aristotle as well as by acute logicians of modern times. Even these four cannot be kept clearly apart: the predicates which declare Quantity or Quality must at the same time declare or imply Relation; while the predicates which declare Relation

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10). As I have mentioned before (p. 71 n.), Simplikius, in the Scholia (p. 65, b. 14), points out that Aristotle has not been careful here to observe his own precept of selecting οἰκείως the correlative term. He ought to have stated the potential as correlating with the potential, the actual with the actual. If he had done this, the συνύπαρξις τῶν πρός τι would have been seen to be true in all cases. Eudorus noticed a similar inadvertence of Aristotle in the case of πτέρον and πτερωτόν (Schol. 63, a. 43). See 'Plato and the Other Companions of Sokrates,' vol. ii. p. 330, note[x].

I transcribe a curious passage of Leibnitz, bearing on the same question:—"On réplique maintenant, que la vérité du mouvement est indépendante de l'observation: et qu'un vaisseau peut avancer, sans que celui qui est dedans s'en aperçoive. Je réponds, que le mouvement est indépendant de l'observation: mais qu'il *n'est point indépendant de l'observabilité.* Il n'y a point de mouvement, quand il n'y a point de changement *observable.* Et même quand il n'y a point de changement observable, il n'y a point de changement du tout. Le contraire est fondé sur la supposition d'un Espace réel absolu, que j'ai réfuté demonstrativement par le principe du besoin d'une Raison suffisante des choses." (Correspondence with Clarke, p. 770. Erdmann's edition.)

[a] Aristot. Categor. p. 6, b. 2; p. 8, b. 27.

must also imply the *fundamentum* either of Quantity or of Quality.[a]

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[a] See Trendelenburg, Kategorienlehre, p. 117, seq.

The remarks made by Mr. John Stuart Mill (in his System of Logic, book i. ch. iii.) upon the Aristotelian Categories, and the enlarged philosophical arrangement which he introduces in their place, well deserve to be studied. After enumerating the ten Predicaments, Mr. Mill says:—"It is a mere catalogue of the distinctions rudely marked out by the language of familiar life, with little or no attempt to penetrate, by philosophic analysis, to the *rationale* even of these common distinctions. Such an analysis would have shewn the enumeration to be both redundant and defective. Some objects are omitted, and others repeated several times under different heads." (Compare the remarks of the Stoic commentators, and Porphyry, Schol. p. 48, b. 10 Br.: ἀθετοῦντες τὴν διαίρεσιν ὡς πολλὰ παριεῖσαν καὶ μὴ περιλαμβάνουσαν, ἢ καὶ πάλιν πλεονάζουσαν. And Aristotle himself observes that the same predicates might be ranked often under more than one head.) "That could not be a very comprehensive view of the nature of Relation, which could exclude action, passivity, and local situation from that category. The same objection applies to the categories Quando (or position in time), and Ubi (or position in space); *while the distinction between the latter and Situs* (Κεῖσθαι) *is merely verbal.* The incongruity of erecting into a *summum genus* the tenth Category is manifest. On the other hand, the enumeration takes no notice of any thing but Substances and Attributes. In what Category are we to place sensations, or any other feelings and states of mind? as hope, joy, fear; sound, smell, taste; pain, pleasure; thought, judgment, conception, and the like? Probably all these would have been placed by the Aristotelian school in the Categories of Actio and Passio; and the relation of such of them as are active, to their objects, and of such of them as are passive, to their causes, would have been rightly so placed; but the things themselves, the feelings or states of mind, wrongly. Feelings, or states of consciousness, are assuredly to be counted among realities; but they cannot be reckoned either among substances or among attributes."

Among the many deficiencies of the Aristotelian Categories, as a complete catalogue, there is none more glaring than the imperfect conception of Πρός τι (the Relative), which Mr. Mill here points out. But the Category Κεῖσθαι (badly translated by commentators *Situs*, from which Aristotle expressly distinguishes it, Categor. p. 6, b. 12: τὸ δὲ ἀνακεῖσθαι ἢ ἑστάναι ἢ καθῆσθαι αὐτὰ μὲν οὐκ εἰσὶ θέσεις) appears to be hardly open to Mr. Mill's remark, that it is only verbally distinguished from Ποῦ, *Ubi*. Κεῖσθαι is intended to mean *posture*, *attitude*, &c. It is a reply to the question, In what posture is Sokrates? Answer.—He is lying down, standing upright, kneeling, πὺξ προτείνων, &c. This is quite different from the question, Where is Sokrates? In the market-place, in the palæstra, &c. Κεῖσθαι (as Aristotle himself admits, Categ. p. 6, b. 12) is not easily distinguished from Πρός τι: for the abstract and general word θέσις (*position*) is reckoned by Aristotle under Πρός τι, though the *paronyma* ἀνακεῖσθαι, ἑστάναι, καθῆσθαι, are affirmed not to be θέσεις, but to come under the separate Category Κεῖσθαι. But Κεῖσθαι is clearly distinguishable from Ποῦ *Ubi*.

Again, to Mr. Mill's question, "In what Category are we to place sensations or other states of mind—hope, fear, sound, smell, pain, pleasure, thought, judgment," &c.? Aristotle would have replied (I apprehend) that they come under the Category either of *Quale* or of *Pati*—Ποιότητες or Πάθη. They are attributes or modifications of Man, Kallias, Sokrates, &c. If the condition of which we speak be temporary or transitory, it is a πάθος and we speak of Kallias as πάσχων τι; if it be a durable disposition or capacity likely to pass into repeated manifestations, it is ποιότης, and we describe Kallias as ποιός τις (Categ. p. 9, a. 28-p. 10, a. 9). This equally applies to mental and bodily conditions (ὁμοίως δὲ τούτοις καὶ κατὰ τὴν ψυχὴν παθητικαὶ ποιότητες καὶ πάθη λέγεται.—p. 9, b. 33). The line is dubious and difficult between πάθος and ποιότης, but one or other of the two will comprehend all the mental states indicated by Mr. Mill. Aristotle would not have admitted that "feelings are to be counted among realities," except as they are now or may be the feelings of Kallias, Sokrates, or some other *Hic Aliquis*—one or many. He would consider feelings as attributes belonging to these Πρῶται Οὐσίαι; and so in fact Mr. Mill himself considers them (p. 83), after having specified the Mind (distinguished from Body or external object) as the Substance to which they belong.

Mr. Mill's classification of Nameabl

The most capital distinction, however, which is to be found among the Categories is that of Essence or Substance from all the rest. This is sometimes announced as having a standing *per se*; as not only logically distinguishable, but really separable from the other nine, if we preserve the Aristotelian list of ten,[a] or from the other three, if we prefer the reduced list of four. But such real separation cannot be maintained. The *Prima Essentia* (we are told) is indispensable as a Subject, but cannot appear as Predicate; while all the rest can and do so appear. Now we see that this definition is founded upon the function enacted by each of them in predication, and therefore presupposes the fact of predication, which is in itself a Relation. The Category of Relation is thus implied, in declaring what the First Essence is, together with some *predicabilia* as correlates, though it is not yet specified what the *predicabilia* are. But besides this, the distinction drawn by Aristotle, between First and Second Essence or Substance, abolishes the marked line of separation between Substance and Quality, making the former shade down into the latter. The distinction recognizes a more or less in Substance, which graduation Aristotle expressly points out, stating that the Species is *more* Substance or Essence, and the Genus *less* so. We see thus that he did not conceive Substance (apart from attributes) according to the modern view, as that which exists *without* the mind (excluding *within* the mind or *relation* to the mind); for in that there can be no graduation. That which is without the mind, must also be within; and that which is within must also be without; the subject and the object correlating. This implication of within and without understood, there is then room for graduation, according as the one or the other aspect may be more or less prominent. Aristotle, in point of fact, confines himself to the mental or logical work of predication, to the conditions thereof, and to the component terms whereby the mind accomplishes that act. When he speaks of the First Essence or Substance, without the Second, all that he

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Things is much better and more complete than the Aristotelian Categories, inasmuch as it brings into full prominence the distinction between the subjective and objective points of view, and, likewise, the all-pervading principle of Relativity, which implicates the two; whereas, Aristotle either confuses the one with the other, or conceives them narrowly and inadequately. But we cannot say, I think, that Aristotle, in the Categories, assigns no room for the mental states or elements. He has a place for them, though he treats them altogether objectively. He takes account of *himself* only as an object—as one among the πρῶται οὐσίαι, or individuals, along with Sokrates and Kallias.

[a] Aristotle sometimes speaks of it as χωριστόν, the other Categories being not χωριστά (Metaphys. Z. p. 1028, a. 34). It is not easy, however, always to distinguish whether he means by the term χωριστὰ "*sejuncta re*, or *sejuncta notione solâ*." See Bonitz ad Metaphysic. (Δ. p. 1017), p. 244.

can say about it positively is to call it *Unum numero* and indivisible:[a] (even thus, he is compelled to introduce unity, measure, and number,) all of which belong to the two Categories of Quantity and Relation; and yet still the First Essence or Substance remains indeterminate. We only begin to determine it when we call it by the name of the Second Substance or Essence; which name connotes certain attributes, the attributes thus connoted being of the essence of the Species; that is, unless they be present, no individual would be considered as belonging to the Species, or would be called by the specific name.[b] When we thus, however, introduce attributes, we find ourselves not merely in the Category of *Substantia* (*Secunda*), but also in that of *Qualitas*. The boundary between *Substantia* and *Qualitas* disappears; the latter being partially contained in the former. (The Second Substance or Essence includes attributes or Qualities belonging to the Essence. In fact, the Second Substance or Essence, when distinguished from the First, is both here and elsewhere characterized by Aristotle, as being not Substance at all, but Quality)[c] though when considered as being in implication with the First, it takes on the nature of Substance and becomes substantial or essential Quality. The Differentia belongs thus both to Substance and to Quality (*quale quid*), making up as complement that which is designated by the specific name.[d]

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[a] Categor. p. 3, b. 12: *ἄτομον γὰρ καὶ ἓν ἀριθμῷ τὸ δηλούμενόν ἐστιν.* Compare Metaphysic. N. p. 1087, b. 33; p. 1088, a. 10.

[b] Hobbes says:—"Now that accident (*i.e.* attribute) for which we give a certain name to any body, or the accident which denominates its Subject, is commonly called the Essence thereof; as rationality is the essence of a man, whiteness of any white thing, and extension the essence of a body" (Hobbes, Philosophy, ch. viii. s. 23). This topic will be found discussed, most completely and philosophically, in Mr. John Stuart Mill's System of Logic, Book I. ch. vi. ss. 2-3; ch. vii. s. 5.

[c] Categor. p. 3, b. 13: *ἐπὶ δὲ τῶν δευτέρων οὐσιῶν φαίνεται μὲν ὁμοίως τῷ σχήματι τῆς προσηγορίας τόδε τι σημαίνειν, ὅταν εἴπῃ ἄνθρωπον ἢ ζῷον, οὐ μὴν ἀληθές γε, ἀλλὰ μᾶλλον ποιόν τι σημαίνει—ποιὰν γάρ τινα οὐσίαν σημαίνει* (b. 20).

Metaphysic. Z. p. 1038, b. 35: *φανερὸν ὅτι οὐθὲν τῶν καθόλου ὑπαρχόντων οὐσία ἐστί, καὶ ὅτι οὐθὲν σημαίνει τῶν κοινῇ κατηγορουμένων τόδε τι, ἀλλὰ τοιόνδε.* Compare Metaphys. M. p. 1087, a. 1; Sophistic. Elench. p. 178, b. 37; 179, a. 9.

That which is called *πρώτη οὐσία* in the Categoriæ is called *τρίτη οὐσία* in Metaphys. H. p. 1043, a. 18. In Ethic. Nikom. Z. p. 1143, a. 32, seq., the *generalissima* are called *πρῶτα*, and particulars are called *ἔσχατα*. Zell observes in his commentary (p. 224), "*τὰ ἔσχατα* sunt res singulæ, quæ et ipsæ sunt extremæ, ratione mentis nostræ, ab universis ad singula delabentis." Patricius remarks upon the different sense of the terms *Πρώτη Οὐσία* in the Categoriæ and in the De Interpretatione (Discuss. Peripatetic. p. 21).

[d] Metaphysic. Δ. p. 1020, b. 13: *σχεδὸν δὴ κατὰ δύο τρόπους λέγοιτ' ἂν τὸ ποιόν, καὶ τούτων ἕνα τὸν κυριώτατον· πρώτη μὲν γὰρ ποιοτὴς ἡ τῆς οὐσίας διαφορά.* Compare Physic. v. p. 226, a. 27. See Trendelenburg, Kategorienlehre, pp. 56, 93.

The remarks of the different expositors (contained in Scholia, pp. 52, 53, 54, Brand.), are interesting upon the ambiguous position of Differentia, in regard to Substance and Quality. It comes out to be Neither and Both—*οὐδέτερα καὶ ἀμφότερα* (Plato, Euthydemus, p. 300 C.). Dexippus and Porphyry called it something intermediate between *οὐσία* and *ποιότης*, or between *οὐσία* and *συμβεβηκός*.

We see, accordingly, that neither is the line of demarcation between the Category of Substance or Essence and the other Categories so impassable, nor the separability of it from the others so marked as some thinkers contend. Substance is represented by Aristotle as admitting of more and less, and as graduating by successive steps down to the other Categories; moreover, neither in its complete manifestation (as First Substance), nor in its incomplete manifestation (as Second Substance), can it be explained or understood without calling in the other Categories of Quantity, Quality, and Relation. It does not correspond to the definition of *Substantia* given by Spinoza—"*quod in se est et per se concipitur.*" It can no more be conceived or described without some of the other Categories, than they can be conceived or described without it. Aristotle defines it by four characteristics, two negative, and two positive. It cannot be predicated of a Subject: it cannot inhere in a Subject: it is, at bottom, the Subiect of all Predicates: it is *Unum numero* and indivisible.[a] Not one of these four determinations can be conceived or understood, unless we have in our minds the idea of other Categories and its relation to them. Substance is known only as the Subject of predicates, that is, relatively to them; as they also are known relatively to it. Without the Category of Relation, we can no more understand what is meant by a Subject than what is meant by a Predicate. The Category of Substance, as laid out by Aristotle, neither exists by itself, nor can be conceived by itself, without that of Relation and the generic notion of Predicate.[b] All three lie

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[a] Categor. p. 2, a. 14, b. 4; p. 3, b. 12.

[b] Aristotle gives an explanation of what he means by *καθ' αὑτό—καθ' αὑτά*, in the Analytic. Post. I. iv. p. 73, a. 34, b. 13. According to that explanation it will be necessary to include in *τὸ καθ' αὑτὸ* of the Category *Οὐσία*, all that is necessary to make the definition or explanation of that Category understood.

M. Barthélemy St. Hilaire, in the valuable Preface introducing his translation of the Organon, gives what I think a just view of the Categories generally, and especially of *πρώτη οὐσία*, as simply naming (*i.e.* giving a proper name), and doing nothing more. I transcribe the passage, merely noting that the terms *anterior* and *posterior* can mean nothing more than *logical* anteriority and posteriority.

"Mais comment classer les mots?—C'est à la réalité seule qu'il faut le demander; à la réalité dont le langage n'est que le réflet, dont les mots ne sont que le symbole. Que nous présente la réalité? Des individus, rien que des individus, existant par eux-mêmes, et se groupant, par leurs ressemblances et leurs différences, sous des espèces et sous des genres. Ainsi donc, en étudiant l'individu, l'être individuel, et en analysant avec exactitude tout ce qu'il est possible d'en dire en tant qu'être, on aura les classes les plus générales des mots; les catégories, ou pour prendre le terme français, les attributions, qu'il est possible de lui appliquer. Voilà tout le fondement des Catégories.—Ce n'est pas du reste, une classification des choses à la manière de celles de l'histoire naturelle, qu'il s'agit de faire en logique: c'est une simple énumération de tous les points de vue, d'ou l'esprit peut considérer les choses, non pas, il est vrai, par rapport à l'esprit lui-même, mais par rapport à leur réalité et à leurs appellations.—Aristote dis-

together at the bottom of the analytical process, as the last findings and residuum.

Aristotle, taking his departure from an analysis of the complete sentence or of the act of predication, appears to have regarded the Subject as having a natural priority over the Predicate. The noun-substantive (which to him represents the Subject), even when pronounced alone, carries to the hearer a more complete conception than either the adjective or the verb when pronounced alone; these make themselves felt much more as elliptical and needing complementary adjuncts. But this is only true in so far as the conception, raised by the substantive named alone (*ἄνευ συμπλοκῆς*), includes by anticipation what would be included, if we added to it some or all of its predicates. If we could deduct from this conception the meaning of all the applicable predicates, it would seem essentially barren or incomplete, awaiting something to come; a mere point of commencement or departure,[a] known only by the various lines which may be drawn from it; a *substratum* for various attributes to lie upon or to inhere in. That which is known only as a *substratum*, is known only relatively to a superstructure to come; the one is *Relatum*, the other *Correlatum*, and the mention of either involves an implied assumption of the other. There may be a logical priority, founded upon expository convenience, belonging to the *substratum*, because it remains numerically one and the same, while the superstructure is variable. But the priority is nothing more than logical and notional; it does not amount to an ability of prior independent existence. On the contrary,

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tingue ici dix points de vue, dix significations principales des mots.—La Catégorie de la Substance est à la tête de toutes les autres, précisément parceque la première, la plus essentielle, marque d'un être, c'est d'être. Cela revient a dire qu'avant tout, l'être est, l'être existe. Par suite les mots qui expriment la substance sont antérieurs à tous les autres, et sont les plus importants. Il faut ajouter que ces mots là participeront en quelque sorte à cet isolement que les individus nous offrent dans la nature. Mais de même que, dans la réalité, les individus subsistant par eux seuls forment des espèces et des genres, qui ont bien aussi une existence substantielle, la substance se divisera de même en substance première et substance seconde.—Les espèces et les genres, s'ils expriment la substance, ne l'expriment pas dans toute sa pureté; c'est déja de la substance qualifié, comme le dit Aristote.—Il n'y a bien dans la réalité que des individus et des espèces ou genres. Mais ces individus en soi et pour soi n'existent pas seulement; ils existent sous certaines conditions; leur existence se produit sous certaines modifications, que les mots expriment aussi, tout comme ils expriment l'existence absolue. Ces nouvelles classes de mots formeront les autres Catégories.—Ces modifications, ces accidents, de l'individu sont au nombre de neuf: Aristote n'en reconnaît pas davantage.—Voila dont les dix Catégories: les dix seules attributions possibles. *Par la première, on nomme les individus, sans faire plus que les nommer: par les autres, on les qualifie.* On dit d'abord ce qu'est l'individu, et ensuite quel il est." Barthélemy St. Hilaire, Logique d'Aristote, Preface, pp. lxxii.-lxxvii.

[a] Plato would not admit the point as as anything more than ἀρχὴν γραμμῆς (Aristot. Metaphys. A. p. 992, a. 21).

there is simultaneity *by nature* (according to Aristotle's own definition of the phrase) between Subject, Relation, and Predicate; since they all imply each other as reciprocating correlates, while no one of them is the cause of the others.[a]

When Aristotle says, very truly, that if the First Substances were non-existent, none of the other Predicaments could exist, we must understand what he means by the term *first*. That term bears, in this treatise, a sense different from what it bears elsewhere: here it means the extreme concrete and individual; elsewhere it means the extreme abstract and universal. The First Substance or First Essence, in the Categories, is a *Hoc Aliquid* (τόδε τι), illustrated by the examples *hic homo, hic equus*. Now, as thus explained and illustrated, it includes not merely the Second Substance, but various accidental attributes besides. When we talk of This man, Sokrates, Kallias, &c., the hearer conceives not only the attributes for which he is called a man, but also various accidental attributes, ranking under one or more of the other Predicaments. The First Substance thus (as explained by Aristotle) is not conceived as a mere *substratum* without Second Substance and without any Accidents, but as already including both of them, though as yet indeterminately; it waits for specializing words, to determine what its Substance or Essence is, and what its accompanying Accidents are. Being an individual (*Unum numero*), it unites in itself both the essential attributes of its species, and the unessential attributes peculiar to itself.[b] It is already understood as including attributes of both kinds; but we wait for predicates to declare (δηλοῦν—ἀποδιδόναι[c]) what these attributes are. The First or Complete *Ens* embodies in itself all the Predicaments, though as yet potential and indeterminate, until the predicating adjuncts are specified. There is no priority, in the order of existence, belonging to Substance over Relation or Quality; take away either one of the three, and the First *Ens* disappears. But in regard to the order of exposition, there is a natural priority, founded on convenience and facility of understanding. The *Hoc Aliquid* or *Unum Numero*, which intimates in general

[a] Aristot. Categor. p. 14, b. 27: φύσει δὲ ἅμα, ὅσα ἀντιστρέφει κατὰ τὴν τοῦ εἶναι ἀκολούθησιν, μηδαμῶς δὲ αἴτιον θάτερον θατέρῳ τοῦ εἶναί ἐστιν, οἷον ἐπὶ τοῦ διπλασίου καὶ τοῦ ἡμίσεος· &c.

[b] Aristot. Metaphys. Z. p. 1033, b. 24; p. 1034, a. 8. Τὸ δ' ἅπαν τόδε Καλλίας ἢ Σωκράτης ἐστὶν ὥσπερ ἡ σφαῖρα ἡ χαλκῆ ἡδί, ὁ δ' ἄνθρωπος καὶ τὸ ζῷον ὥσπερ σφαῖρα χαλκῆ ὅλως.—τὸ δ' ἅπαν ἤδη τὸ τοιόνδε εἶδος ἐν ταῖσδε ταῖς σαρξὶ καὶ ὀστοῖς Καλλίας καὶ Σωκράτης· καὶ ἕτερον μὲν διὰ τὴν ὕλην, ἕτερα γάρ, ταὐτὸ δὲ τῷ εἴδει· ἄτομον γὰρ τὸ εἶδος.

[c] Categor. p. 2, b. 29, seq. εἰκότως δὲ μετὰ τὰς πρώτας οὐσίας μόνα τῶν ἄλλων τὰ εἴδη καὶ τὰ γένη δεύτεραι οὐσίαι λέγονται· μόνα γὰρ δηλοῖ τὴν πρώτην οὐσίαν τῶν κατηγορουμένων. &c.

outline a certain concretion or co-existence of attributes, though we do not yet know what they are—being as it were a skeleton—comes naturally as Subject before the predicates, whose function is declaratory and specifying as to those attributes: moreover, the essential attributes, which are declared and connoted when we first bestow a specific name on the subject, come naturally before the unessential attributes, which are predicated of the subject already called by a specific name connoting other attributes.[a] The essential characters are native and at home; the accidental attributes are domiciliated foreigners.[b]

It is thus that Aristotle has dealt with Ontology, in one of the four distinct aspects thereof, which he distinguishes from each other; that is, in the distribution of *Entia* according to their logical order, and the reciprocal interdependence, in predication. *Ens* is a multivocal word, neither strictly univocal nor altogether equivocal. It denotes (as has been stated above) not a generic aggregate, divisible into species, but an analogical aggregate, starting from one common terminus and ramifying into many derivatives, having no other community except that of relationship to the same terminus.[c] The different modes of *Ens* are distinguished by the degree or variety of such relationship. The *Ens Primum, Proprium, Completum,* is (in Aristotle's view) the concrete individual; with a defined essence or essential constituent attributes (*τί ἦν εἶναι*), and with unessential accessories or accidents also—all embodied and implicated in the One *Hoc Aliquid*. In the Categoriæ Aristotle analyses this *Ens Completum* (not metaphysically, into Form and Matter, as we shall find him doing elsewhere, but) logically into Subject and Predicates. In this logical analysis, the Subject which can never be a Predicate stands first; next, come the near kinsmen, Genus and Species (expressed by substantive names, as the First Substance is), which are sometimes Predicates—as applied to *Substantia Prima,* sometimes Subjects—in regard to the extrinsic accompaniments or accidents;[d] in the third rank, come the more remote kinsmen, Predicates pure and

[a] Analyt. Poster. i. p. 73, b. 6: *οἷον τὸ βαδίζον ἕτερόν τι ὂν βαδίζον ἐστὶ καὶ λευκόν, ἡ δ' οὐσία, καὶ ὅσα τόδε τι σημαίνει, οὐχ ἕτερόν τι ὄντα ἐστὶν ὅπερ ἐστίν.* Also p. 83, a. 31. *καὶ μὴ εἶναί τι λευκόν, ὃ οὐχ ἕτερόν τι ὂν λευκόν ἐστιν*: also p. 83, b. 22.

[b] Categor. p. 2, b. 31: *τὸν γάρ τινα ἄνθρωπον ἐὰν ἀποδιδῷ τις τί ἐστι, τὸ μὲν εἶδος ἢ τὸ γένος ἀποδιδοὺς οἰκείως ἀποδώσει—τῶν δ' ἄλλων ὅ τι ἂν ἀποδιδῷ τις, ἀλλοτρίως ἔσται ἀποδεδωκώς,* &c.

[c] Aristot. Metaphys. Δ. p. 1017, a. 22: *καθ' αὑτὰ δὲ εἶναι λέγεται ὅσαπερ σημαίνει τὰ σχήματα τῆς κατηγορίας· ὁσαχῶς γὰρ λέγεται, τοσαυταχῶς τὸ εἶναι σημαίνει.*

[d] Categor. p. 3, a. 1: *ὡς δέ γε αἱ πρῶται οὐσίαι πρὸς τὰ ἄλλα πάντα ἔχουσιν, οὕτω τὰ εἴδη καὶ τὰ γένη πρὸς τὰ λοιπὰ πάντα ἔχει· κατὰ τούτων γὰρ πάντα τὰ λοιπὰ κατηγορεῖται.*

simple. These are the logical factors or constituents into which the *Ens Completum* may be analysed, and which together make it up as a logical sum-total. But no one of these logical constituents has an absolute or independent *locus standi*, apart from the others. Each is relative to the others; the Subject to its Predicates, not less than the Predicates to their Subject. It is a mistake to describe the Subject as having a real standing separately and alone, and the Predicates as something afterwards tacked on to it. The Subject *per se* is nothing but a general potentiality or receptivity for Predicates to come; a relative general conception, in which the two, Predicate and Subject, are jointly implicated as *Relatum* and *Correlatum*.[a]

The logical aspect of Ontology, analysing *Ens* into a common Subject with its various classes of Predicates, appears to begin with Aristotle. He was, as far as we can see, original, in taking as the point of departure for his theory, the individual man, horse, or other perceivable object; in laying down this Concrete Particular with all its outfit of details, as the type of *Ens* proper, complete and primary; and in arranging into classes the various secondary modes of *Ens*, according to their different relations to the primary type and the mode in which they contributed to make up its completeness. He thus stood opposed to the Pythagoreans and Platonists, who took their departure from the Universal, as the type of full and true Entity;[b] while he also

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[a] Bonitz has an instructive note upon Form and Matter, the *metaphysical* constituents of *Prima Substantia*, *Hoc Aliquid*, Sokrates, Kallias (see Aristot. Metaphys. Z. p. 1033, b. 24), which illustrates pertinently the relation between Predicate and Subject, the *logical* constituents of the same *σύνολον*. He observes (not. p. 327, ad. Aristot. Metaph. Z. p. 1033, b. 19), "Quoniam ex duabus substantiis, quæ quidem actu sint, nunquam una existit substantia, si et formam et materiem utrumque per se esse poneremus, nunquam ex utroque existeret res definita ac sensibilis, *τόδε τι*. Ponendum potius, si recte assequor Aristotelis sententiam, utrumque (Form and Matter) ita ut alterum exspectet, materia ut formæ definitionem, forma ut materiam definiendam, exspectet, neutra vero per se et absolute sit." What Bonitz says here about Matter and Form is no less true about Subject and Predicate: each is relative to the other—neither of them is absolute or independent of the other. In fact, the explanation given by Aristotle of *Materia* (Metaph. Z. p. 1028, b. 36) coincides very much with the *Prima Essentia* of the Categories, if abstracted from the *Secunda Essentia*. *Materia* is called there by Aristotle *τὸ ὑποκείμενον, καθ' οὗ τὰ ἄλλα λέγεται, ἐκεῖνο δ' αὐτὸ μηκέτι κατ' ἄλλο—λέγω δ' ὕλην ἣ καθ', αὑτὴν μήτε τὶ μήτε ποσὸν μήτε ἄλλο μηθὲν λέγεται οἷς ὥρισται τὸ ὄν* (p. 1029 a. 20). *ἔστι γάρ τι καθ' οὗ κατηγορεῖται τούτων ἕκαστον, ᾧ τὸ εἶναι ἕτερον καὶ τῶν κατηγοριῶν ἑκάστῃ· τὰ μὲν γὰρ ἄλλα τῆς οὐσίας κατηγορεῖται, αὕτη δὲ τῆς ὕλης.*

Aristotle proceeds to say that this Subject—the Subject for all Predicates, but never itself a Predicate—cannot be the genuine *οὐσία*, which must essentially be *χωριστὸν καὶ τὸ τόδε τι* (p. 1029, a. 28), and which must have a *τί ἦν εἶναι* (1029, b. 2). The Subject is in fact not true *οὐσία*, but is one of the constituent elements thereof, being relative to the Predicates as *Correlata*: it is the potentiality for Predicates generally, as *Materia* is the potentiality for Forms.

[b] Simplikius ad Categ. p. 2, b. 5; Schol.

dissented from Demokritus, who recognized no true *Ens* except the underlying, imperceptible, eternal atoms and vacuum. Moreover Aristotle seems to have been the first to draw up a logical analysis of Entity in its widest sense, as distinguished from that metaphysical analysis which we read in his other works; the two not being contradictory, but distinct and tending to different purposes. Both in the one and in the other, his principal controversy seems to have been with the Platonists, who disregarded both individual objects and accidental attributes; dwelling upon Universals, Genera and Species, as the only real *Entia* capable of being known. With the Sophists, Aristotle contends on a different ground, accusing them of neglecting altogether the essential attributes, and confining themselves to the region of accidents, in which no certainty was to be found;[a] in Plato, he points out the opposite mistake, of confining himself to the essentials, and ascribing undue importance to the process of generic and specific subdivision.[b] His own logical analysis takes account both of the essential and accidental, and puts them in what he thinks their proper relation. The Accidental (συμβεβηκός, concomitant, *i.e.* of the essence) is *per se* not knowable at all (he contends), nor is ever the object of study pursued in any science; it is little better than a name, designating the lowest degree of *Ens*, bordering on *Non-Ens*.[c] It is a term comprehending all that he includes under his nine last Categories; yet it is not a term connoting either generic communion, or even so much as analogical relation.[d] In the treatise now before us, he does not recognize either that or any other general term as common to all those nine Categories; each of the nine is here treated as a *Summum Genus*, having its own mode of relationship, and clinging by its own separate thread to the Subject. He acknowledges the Accidents in his classification, not as a class by themselves, but as subordinated to the Essence, and, as so many threads of distinct, variable, and irregular accompani-

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p. 52, a. 1, Br: Ἀρχύτας ὁ Πυθαγορεῖος οὐ προσίεται τὴν νυνὶ προκειμένην τῶν οὐσιῶν διαίρεσιν, ἀλλ' ἄλλην ἀντὶ ταύτης ἐκεῖνος ἐγκρίνει—τῶν μέντοι Πυθαγορείων οὐδεὶς ἂν πρόσοιτο ταύτην τὴν διαίρεσιν τῶν πρώτων καὶ δευτέρων οὐσιῶν, ὅτι τοῖς καθόλου τὸ πρώτως ὑπάρχειν μαρτυροῦσι, τὸ δὲ ἔσχατον ἐν τοῖς μεριστοῖς ἀπολείπουσι, καὶ διότι ἐν τοῖς ἁπλουστάτοις τὴν πρώτην καὶ κυριωτάτην οὐσίαν ἀποτίθενται, ἀλλ' οὐχ ὡς νῦν λέγεται ἐν τοῖς συνθέτοις καὶ αἰσθητοῖς, καὶ διότι τὰ γένη καὶ τὰ εἴδη ὄντα νομίζουσιν, ἀλλ' οὐχὶ συγκεφαλαιούμενα ταῖς χωρισταῖς ἐπινοίαις.

[a] Metaphys. E. p. 1026, b. 15: εἰσὶ γὰρ οἱ τῶν σοφιστῶν λόγοι περὶ τὸ συμβεβηκὸς ὡς εἰπεῖν μάλιστα πάντων, &c.; also K. p. 1061, b. 8; Analytic. Poster. i. p. 71, b. 10.

[b] Analytic. Priora. i. p. 46, a. 31.

[c] Aristot. Metaph. E. p. 1026, b. 13-21: ὥσπερ γὰρ ὀνόματι μόνον τὸ συμβεβηκός—φαίνεται γὰρ τὸ συμβεβηκὸς ἐγγύς τι τοῦ μὴ ὄντος.

[d] Physica, iii. 1, p. 200, b. 34. κοινὸν δ' ἐπὶ τούτων οὐδέν ἐστι λαβεῖν, &c.

ments attaching themselves to this constant root, without uniformity or steadiness.[a]

In discriminating and arranging the Ten Categories, Trendelenburg supposes that Aristotle was guided, consciously or unconsciously, by grammatical considerations, or by a distinction among the parts of speech. It should be remembered that what are now familiarly known as the eight parts of speech, had not yet been distinguished or named in the time of Aristotle, nor did the distinction come into vogue before the time of the Stoic and Alexandrine grammarians, more than a century after him. *Essentia* or *Substantia*, the first Category, answers (so Trendelenburg thinks[b]) to the Substantive; *Quantum* and *Quale* represent the Adjective; *Ad Aliquid*, the comparative Adjective, of which *Quantum* and *Quale* are the positive degree; *Ubi* and *Quando* the Adverb; *Jacere, Habere, Agere, Pati* the Verb. Of the last four, *Agere* and *Pati* correspond to the active and passive voices of the Verb; *Jacere* to the neuter or intransitive Verb; and *Habere* to the peculiar meaning of the Greek perfect—the present result of a past action.

This general view, which Trendelenburg himself conceives as having been only guiding and not decisive or peremptory in the mind of Aristotle,[c] appears to me likely and plausible, though Bonitz and others have strongly opposed it. We see from Aristotle's own language, that the grammatical point of view had great effect upon his mind; that the form (*e.g.*) of a substantive implied in his view a mode of signification belonging to itself, which was to be taken into account in arranging and explaining the Categories.[d] I apprehend that Aristotle was induced to distinguish and set out his Categories by analysing

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[a] See the explanation given of *τὸ ὂν κατὰ συμβεβηκὸς* in Metaphys. E. pp. 1026 b., 1027 a. This is the sense in which Aristotle most frequently and usually talks of *συμβεβηκός*, though he sometimes uses it to include also a constant and inseparable accompaniment or Accident, if it be not included in the Essence (*i. e.* not connoted by the specific name); thus, to have the three angles equal to two right angles is a *συμβεβηκὸς* of the triangle, Metaph. Δ. p. 1025, a. 30. The proper sense in which he understands *τὸ συμβεβηκὸς* is as opposed to *τὸ ἀεὶ ἐξ ἀνάγκης*, as well as to *τὸ ὡς ἐπὶ τὸ πολύ*. See Metaphys. K. p. 1065, a. 2; Analyt. Poster. i. p. 74, b. 12, p. 75, a. 18.

It is that which is by its nature irregular and unpredictable. See the valuable chapter (ii) in Brentano, Von der Bedeutung des Seienden nach Aristoteles (pp. 8-21), in which the meaning of *τὸ συμβεβηκὸς* in Aristotle is clearly set forth.

[b] Trendelenburg, Kategorienlehre, pp. 23, 211.

[c] Ibid. p. 209: "Gesichtspunkte der Sprache leiteten den erfindeuden Geist, um sie (die Kategorien) zu bestimmen. Aber die grammatischen Beziehungen leiten nur und entscheiden nicht." P. 216: "der grammatische Leitfaden der Satzzergliederung wird anerkannt."

[d] Categor. p. 3, b. 13: ἐπὶ δὲ τῶν δευτέρων οὐσιῶν φαίνεται μὲν ὁμοίως τῷ σχήματι τῆς προσηγορίας τόδε τι σημαίνειν, ὅταν εἴπῃ ἄνθρωπον ἢ ζῷον, οὐ μὴν ἀληθές γε, ἀλλὰ μᾶλλον ποιόν τι σημαίνει. &c.

various complete sentences, which would of course include substantives, adjectives, verbs, and adverbs. It is also remarkable that Aristotle should have designated his four last Categories by the indication of verbs, the two immediately preceding by adverbs, the second and third by adjectives, and the first by a substantive. There remains the important Category *Ad Aliquid*, which has no part of speech corresponding to it specially. Even this Category, though not represented by any part of speech, is nevertheless conceived and defined by Aristotle in a very narrow way, with close reference to the form of expression, and to the requirement of a noun immediately following, in the genitive or dative case. And thus, where there is no special part of speech, the mind of Aristotle still seems to receive its guidance from grammatical and syntactic forms.

We may illustrate the ten Categories of Aristotle by comparing them with the four Categories of the Stoics. During the century succeeding Aristotle's death, the Stoics, Zeno and Chrysippus (principally the latter), having before them what he had done, proposed a new arrangement for the complete distribution of Subject and Predicates. Their distribution was quadruple instead of decuple. Their first Category was *τί, Aliquid* or *Quiddam—τὸ ὑποκείμενον*, the *Substratum* or Subject. Their second was *ποιόν, Quale* or Quality. Their third was *πώς ἔχον, certo Modo se habens*. Their fourth was, *πρός τι πώς ἔχον, Ad Aliquid certo Modo se habens*.[a]

We do not possess the advantage (which we have in the case of Aristotle) of knowing this quadruple scheme as stated and enforced by its authors. We know it only through the abridgment of Diogenes Laertius, together with incidental remarks and criticisms, chiefly adverse, by Plutarch, Sextus Empiricus, Plotinus, and some Aristotelian commentators. As far as we can make out upon this evidence, it appears that the first Stoic Category corresponded with the *Πρώτη Οὐσία*, First Essence or Substance of Aristotle. It was exclusively Subject, and could

[a] Plotinus, Ennead. vi. 1, 25; vi. 1, 30: *τὰ πὼς ἔχοντα τρίτα τίθεσθαι*. Simplikius ad Categor. f. 7, p. 48, a. 13, Brand. Schol.: *Οἱ Στωϊκοὶ εἰς ἐλάττονα συστέλλειν ἀξιοῦσι τὸν τῶν πρώτων γενῶν ἀριθμὸν καί τινα ἐν τοῖς ἐλάττοσιν ὑπηλλαγμένα παραλαμβάνουσι. ποιοῦνται γὰρ τὴν τομὴν εἰς τέσσαρα, εἰς ὑποκείμενα, καὶ ποιά, καὶ πὼς ἔχοντα, καὶ πρός τι πὼς ἔχοντα.*

It would seem from the adverse criticisms of Plotinus, that the Stoics recognized one grand *λένος* comprehending all the above four as distinct species: see Plotinus, Ennead., vi. 2, 1; vi. 1, 25. He charges them with inconsistency and error for doing so. He admits, however, that Aristotle did not recognize any one supreme *γένος* comprehending all the ten Categories (vi. 1, 1), but treated all the ten as *πρῶτα γένη*, under an analogous aggregate. I cannot but think that the Stoic looked upon their four *γένη* in the same manner; for I do not see what they could find more comprehensive to rank generically above *τί*.

never become Predicate; but it was indispensable as Subject, to the three other Predicates. Its meaning was concrete and particular; for we are told that all general notions or conceptions were excluded by the Stoics from this Category,[a] and were designated as Οὔτινα, Non-Individuals, or Non-Particulars. *Homo* was counted by them, not under the Category τί, *Quid*, but under the Category ποιόν, *Quale;* in its character of predicate determining the Subject τίς or τί. The Stoic Category *Quale* thus included the Aristotelian Second Essences or Substances, and also the Aristotelian *differentia*. *Quale* was a *species*-making Category (εἰδοποιός).[b] It declared what was the Essence of the Subject τί—the essential qualities or attributes, but also the derivative manifestations thereof, coinciding with what is called the *proprium* in Porphyry's Eisagoge. It therefore came next in order immediately after τί: since the Essence of the Subject must be declared, before you proceed to declare its Accidents.

The Third Stoic Category (πὼς ἔχον) comprised a portion of what Aristotle ranked under *Quale*, and all that he ranked under *Quantum, Ubi, Quando, Agere, Pati, Jacere, Habere.* The

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[a] Simpl. ad Categ., p. 54, a. 12, Schol. Brand.: συμπαραληπτέον δὲ καὶ τὴν συνήθειαν τῶν Στωϊκῶν περὶ τῶν γενικῶν ποιῶν, πῶς αἱ πτώσεις κατ' αὐτοὺς προφέρονται, καὶ πῶς οὔτινα τὰ κοινὰ παρ' αὐτοῖς λέγεται, καὶ ὅπως παρὰ τὴν ἄγνοιαν τοῦ μὴ πᾶσαν οὐσίαν τόδε τι σημαίνειν καὶ τὸ παρὰ τὸν οὔτινα σόφισμα γίνεται παρὰ τὸ σχῆμα τῆς λέξεως· οἷον εἴ τίς ἐστιν ἐν 'Αθήναις, οὐκ ἔστιν ἐν Μεγάροις· ὁ γὰρ ἄνθρωπος οὔτις ἐστίν, οὐ γάρ ἐστί τις ὁ κοινός, ὡς τινὰ δὲ αὐτὸν ἐλάβομεν ἐν τῷ λόγῳ, καὶ παρὰ τοῦτο τὸ ὄνομα τοῦτο ἔσχεν ὁ λόγος οὔτις κληθείς.

Compare Schol. p. 45. a. 7, where Porphyry says that the Stoics, as well as Aristotle, in arranging Categories, took as their point of departure τὸ δεύτερον ὑποκείμενον, not τὸ πρῶτον ὑποκείμενον = τὴν ἄποιον ὕλην).

[b] Trendelenburg, Kategorienlehre p. 222; Plutarch, De Stoicor. Repugnantiis, p. 1054 a.; Simpl. ad Categor. Schol. p. 67, Br. Ποιὰ were distributed by the Stoics into three varieties; and the abstract word Ποιότης, in the Stoic sense, corresponded only to the highest and most complete of these three varieties, not to the second or third variety, so that ποιότης had a narrower extension than ποιόν: there were ποιὰ without any ποιοτὴς corresponding to them. To the third Category, Πὼς ἔχοντα, which was larger and more varied than the second, they had no abstract term corresponding; nor to the fourth Category, Πρός τι. Hence, we may see one reason why the Stoics, confining the abstract term ποιότητες to durable attributes, were disposed to maintain that the ποιότητες τῶν σωμάτων were themselves σώματα or σωματικά: which Galen takes much pains to refute (vol. xix. p. 463, seq. ed. Kühn). The Stoics considered these qualities as ἀέρας τινάς, or πνεύματα, &c., spiritual or gaseous agents pervading and holding together the solid substance.

It is difficult to make out these Stoic theories clearly from the evidence before us. From the statements of Simplikius in Scholia, pp. 67-69, I cannot understand the line of distinction between ποιὰ and πὼς ἔχοντα. The Stoics considered ποιότης to be δύναμις πλείστων ἐποιστικὴ συμπτωμάτων, ὡς ἡ φρόνησις τοῦ τε φρονίμως περιπατεῖν καὶ τοῦ φρονίμως διαλέγεσθαι (p. 69, b. 2); and if all these συμπτώματα were included under ποιόν, so that ὁ φρονίμως περιπατῶν, ὁ πὺξ προτείνων, and ὁ τρέχων, were ποιοί τινες (p. 67, b. 34), I hardly see what was left for the third Category πὼς ἔχοντα to comprehend; although, according to the indications of Plotinus, it would be the most comprehensive. The Stoic writers seem both to have differed among themselves and to have written inconsistently.

Neither Trendelenburg (Kategorienlehre, pp. 223-226), nor even Prantl, in his more elaborate account (Gesch. der Logik, pp. 429-437), clears up this obscurity.

fourth Stoic Category coincided with the Aristotelian *Ad Aliquid*. The third was thus intended to cover what were understood as absolute or non-relative Accidents; the fourth included what were understood as Relative Accidents.

The order of arrangement among the four was considered as fixed and peremptory. They were not co-ordinate species under one and the same genus, but superordinate and subordinate,[a] the second presupposing and attaching to the first; the third, presupposing and attaching to the first, *plus* the second; the fourth, presupposing and attaching to the first, *plus* the second and third. The first proposition to be made is, in answer to the question *Quale Quid?* You answer *Tale Aliquid*, declaring the essential attributes. Upon this, the next question is put, *Quali Modo se habens?* You answer by a term of the third Category, declaring one or more of the accidental attributes non-relative, *Tale Aliquid, tali Modo se habens*. Upon this, the fourth and last question follows, *Quali Modo se habens ad alia?* Answer is made by the predicate of the fourth Category, *i.e.* a Relative. *Hic Aliquis—homo* (1), *niger* (2), *servus* (3).

In comparing the ten Aristotelian with the four Stoic Categories we see that the first great difference is in the extent and comprehension of *Quale*, which Aristotle restricts on one side (by distinguishing from it *Essentia Secunda*), and enlarges on the other (by including in it many attributes accidental and foreign to the Essence). The second difference is, that the Stoics did not subdivide their third Category, but included therein all the matter of six Aristotelian Categories,[b] and much of the matter of the Aristotelian *Quale*. Both schemes agree on two points:—1. In taking as the point of departure the concrete, particular, individual, Substance. 2. In the narrow, restricted, inadequate conception formed of the Relative—*Ad Aliquid*.

Plotinus himself recognizes five *Summa* or *Prima Genera*,[c] (he

[a] Prantl, Geschichte der Logik, vol. i. pp. 428, 429; Simplikius ad Categor. fol. 43, A: *κἀκεῖνο ἄτοπον τὸ σύνθετα ποιεῖν τὰ γένη ἐκ προτέρων τινῶν καὶ δευτέρων ὡς τὸ πρός τι ἐκ ποιοῦ καὶ πρός τι.* Cf. Plotinus, Ennead. vi. 1, 25-29.

Porphyry appears to include all *συμβεβηκότα* under *ποιὸν* and *πὼς ἔχον*: he gives as examples of the latter, what Aristotle would have assigned to the Category *κεῖσθαι* (Eisagoge, cc. 2, 10; Schol. Br. p. 1, b. 32, p. 5, a. 30).

[b] Plotinus (Ennead. vi. 1. 30) disapproves greatly the number of disparates ranked under *τὸ πὼς ἔχον*, which ha[s] (he contends) no discoverable unity as [a] generic term. It is curious to see how h[e] cites the Aristotelian Categories, as if th[e] decuple distinction which they marke[d] out were indefeasible.

Simplikius says that the Stoics distinguished between *τὸ πρός τι* and *τ[ὸ] πρός τι πὼς ἔχον*; and Trendelenbur[g] (pp. 228, 229) explains and illustrate[s] this distinction, which, however, appea[rs] to be very obscure.

[c] Plotinus, Ennead. vi. 2, 8, 14, 1[...]

does not call them Categories) *Ens, Motus, Quies, Idem, Diversum;* the same as those enumerated in the Platonic Sophistes. He does not admit *Quantum, Quale,* or *Ad Aliquid,* to be *Prima Genera;* still less the other Aristotelian Categories. Moreover, he insists emphatically on the distinction between the intelligible and the sensible world, which distinction he censures Aristotle for neglecting. His five *Genera* he applies directly and principally to the intelligible world. For the sensible world he admits ultimately five Catgories; *Substantia* or *Essentia* (though he conceives this as fluctuating between Form, Matter, and the Compound of the two), *Ad Aliquid, Quantum, Quale, Motus.* But he doubts whether *Quantum, Quale,* and *Motus,* are not comprehended in *Ad Aliquid.*[a] He considers, moreover, that Sensible Substance is not Substance, properly speaking, but only an imitation thereof; a congeries of non-substantial elements, qualities and matter.[b] Dexippus,[c] in answering the objections of Plotinus, insists much on the difference between Aristotle's point of view in the Categoriæ, in the Physica, and in the Metaphysica. In the Categoriæ, Aristotle dwells mainly on sensible substances (such as the vulgar understand) and the modes of naming and describing them.

Galen also recognizes five Categories; but not the same five as Plotinus. He makes a new list, formed partly out of the Aristotelian ten, partly out of the Stoic four:—Οὐσία, ποσόν, ποιόν, πρός τι, πρό τι πῶς ἔχον.[d]

The latter portion of this Aristotelian treatise, on the Categories or Predicaments, consists of an Appendix, usually known

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[a] Plotinus, Ennead. vi. 3. 3. ἢ καὶ ταῦτα εἰς τὰ πρός τι· περιεκτικὸν γὰρ μᾶλλον. His idea of Relation is more comprehensive than that of Aristotle, for he declares that terms, propositions, discourse, &c., are πρός τι· καθ' ὃ σημαντικά (vi. 3. 19).

[b] Ibid. vi. 3. 8-15.

[c] The second and third books of Dexippus's Dialogue contain his answers to many of the objections urged by Plotinus. Aristotle, in the Categoriæ (Dexippus says), accommodates himself both to the received manner of speaking and to the simple or ordinary conception of οὐσία entertained by youth or unphilosophical men—οὔτε γὰρ περὶ τῶν ὄντων, οὔτε περὶ τῶν γενῶν τῆς πρώτης οὐσίας νῦν αὐτῷ πρόκειται λέγειν· στοχάζεται γὰρ τῶν νέων τοῖς ἁπλουστέροις ἐπακολουθεῖν δυναμένων (p. 49). Compare also pp. 50-54, where Dexippus contrasts the more abstruse handling which we read in the Physica and Metaphysica, with the more obvious and unpretending thoughts worked out by Aristotle in the Categoriæ. Dexippus gives an interesting piece of advice to his pupil, that he should vary his mode of discussing these topics, according as his companions are philosophical or otherwise—ἐγὼ μὲν οὖν, ὦ καλὲ κἀγαθὲ Σέλευκε, δογματικώτερον πρὸς Πλωτῖνον ἀπαντῶ, σὺ δέ, ἐπεὶ βαθύτεραί πως εἰσὶν αἱ λύσεις αὗται, πρὸς μὲν τοὺς ἐκ φιλοσοφίας ὁρμωμένους ταῖς τοιαύταις ἀπαντήσεσι χρῶ, πρὸς δὲ τοὺς ὀλίγα ἐπισταμένους τῶν δογμάτων ταῖς προχείροις χρῶ διαλύσεσιν, ἐκεῖνο λέγων, ὅτι περὶ πόδα ποιεῖσθαι ἔθος τὰς ἀκροάσεις Ἀριστοτέλει· διὸ καὶ νῦν οὐδὲν ἔξωθεν ἐπεισάγει τῶν ἀνωτέρω κειμένων φιλοσοφημάτων, &c. (pp. 50, 51).

[d] Schol. ad Categor. p. 49 a. 30.

under the title of 'Post-Predicamenta;'[a] wherein the following terms or notions are analysed and explained—*Opposita, Prius, Simul, Motus, Habere.*

Of *Opposita,* Aristotle reckons four modes, analogous to each other, yet not different species under the same genus:[b]— 1. *Relative-Opposita—Relatum* and *Correlatum.* 2. *Contraria.* 3. *Habitus* and *Privatio.* 4. *Affirmatio* and *Negatio.*

These four modes of opposition have passed from the Categoriæ of Aristotle into all or most of the modern treatises on Logic. The three last of the four are usefully classed together, and illustrated by their contrasts with each other. But as to the first of the four, I cannot think that Aristotle has been happy in the place which he has assigned to it. To treat *Relativa* as a variety of *Opposita,* appears to me an inversion of the true order of classification; placing the more comprehensive term in subordination to the less comprehensive. Instead of saying that Relatives are a variety of the Opposite, we ought rather to say that Opposites are varieties of the Relative. We have here another proof of what has been remarked a few pages above; the narrow and inadequate conception which Aristotle formed of his *Ad Aliquid* or the Relative; restricting it to cases in which the describing phrase is grammatically elliptical.[c] The three classes last-mentioned by Aris-

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[a] Andronikus and other commentators supposed the Post-Predicamenta to have been appended to the Categoriæ by some later hand. Most of the commentators dissented from this view. The distinctions and explanations seem all Aristotelian.

[b] Categ. p. 11, b. 16: περὶ δὲ τῶν ἀντικειμένων, ποσαχῶς εἴωθεν ἀντικεῖσθαι ῥητέον. See Simpl. in Schol. p. 81, a 37-b. 24. Whether Aristotle reckoned τὰ ἀντικείμενα a true genus or not, was debated among the commentators. The word ποσαχῶς implies that he did not; and he treats even the term ἐναντία as a πολλαχῶς λεγόμενον, though it is less wide in its application than ἀντικείμενα, which includes *Relata* (Metaphys. I. p. 1055, a. 17). He even treats στέρησις as a πολλαχῶς λεγόμενον (p. 1055, a. 34).

Αἱ ἀντιθέσεις τέσσαρες, the four distinct varieties of τὰ ἀντικείμενα are enumerated by Aristotle in various other places:—Topic. ii. p. 109, b. 17; p. 113, b. 15; Metaphys. I. p. 1055, a. 38. In Metaphys. Δ. p. 1018, a. 20, two other varieties are added. Bonitz observes (ad Metaph. p. 247) that Aristotle seems to treat this quadripartite distribution of *Opposita,* "tanquam certum et exploratum, pariter ac causarum numerum," &c.

[c] Categ. p. 11, b. 24.

Ammonius and Simplikius inform us that there was much debate among the commentators about these four alleged varieties of ἀντικείμενα; also, that even Aristotle himself had composed a special treatise (not now extant), Περὶ τῶν Ἀντικειμένων, full of perplexing ἀπορίαι, which the Stoics afterwards discussed without solving (Schol. p. 83, a. 15-48). Herminus and others seem to have felt the difficulty of calling all Relatives ἀντικείμενα; for they admitted that the antithesis between the Relative and its Correlate was of gentler character, not conflicting, but reciprocally sustaining. Alexander ingeniously compared *Relatum* and its *Correlatum* to the opposite rafters of a roof, each supporting the other (μαλακώτερα καὶ ἧττον μαχόμενα ἐν τοῖς ἀντικειμένοις, ὡς καὶ ἀμφιβάλλεσθαι εἰ εἰσὶν ἀντικείμενα σώζοντα ἄλληλα· ἀλλὰ τοῦτο μὲν δείκνυσιν Ἀλέξανδρος ὅτι ἀντικείμενα, ὃς καὶ τὰ λαβδοειδῆ ξύλα παράδειγμα λαμβάνει, &c., Schol. p. 81, b. 32; p. 82, a. 15, b. 20). This is an undue enlargement of the meaning of *Opposita,* by taking in the literal material sense as an adjunct to the logical. On the con-

totle (1. *Contraria*, 2. *Habitus* and *Privatio*, 3. *Affirmatio* and *Negatio*) are truly *Opposita*; in each there is a different mode of opposition, which it is good to distinguish from the others. But the *Relatum* and its *Correlatum*, as such, are not necessarily *Opposite* at all; they are compared or conceived in conjunction with each other; while a name, called relative, which connotes such comparison, &c., is bestowed upon each. *Opposita* fall under this general description, as parts (together with other parts not *Opposita*) of a larger whole. They ought properly to be called *Opposite-Relativa*: the phrase *Relative-Opposita*, as applied to Relatives generally, being discontinued as incorrect.[a]

From *Opposita* Aristotle passes to *Prius* and *Simul*; with the different modes of each.[b] *Successive* and *Synchronous*, are the two most general classes under which facts or events can be cast. They include between them all that is meant by Order in Time. They admit of no definition, and can be explained only by appeal to immediate consciousness in particular cases. Priority and Simultaneity, in this direct and primary sense, are among the clearest and most impressive notions of the human mind. But Aristotle recognizes four additional meanings of these same words, which he distinguishes from the primary, in the same way as he distinguishes (in the ten Categories) the different meanings of *Essentia*, in a gradually descending scale of analogy. The secondary *Prius* is that which does not reciprocate according to the order of existence with its *Posterius*; where the *Posterius* presupposes the *Prius*, while the *Prius* does not presuppose the *Posterius*: for example, given two, the existence of one is necessarily implied; but given one, the existence of two is not implied.[c] The tertiary *Prius* is that which comes first in the arrangements of science or discourse: as, in geometry, point and line are prior as compared with the diagrams and

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trary, the Stoics are alleged to have worked out the views of Aristotle about *ἐναντία*, but to have restricted the meaning of *ἀντικείμενα* to contradictory opposition, *i. e.* to Affirmative and Negative Propositions with the same subject and predicate (Schol. p. 83, b. 11; p. 87, a. 29). In Metaphysica, A. 983, a. 31, Aristotle calls the final cause (*τὸ οὗ ἕνεκα καὶ τἀγαθόν*) *τὴν ἀντικειμένην αἰτίαν* to the third cause (among his four), *τὸ ὅθεν ἡ κίνησις*. This is a misleading phrase; the two are not opposed, but mutually implicated and correlative.

[a] See the just and comprehensive definition of Relative Names given by Mr. John Stuart Mill, in his System of Logic, Book I. chap. ii. § 7, p. 46.

After reading that definition, the inconvenience of ranking Relatives as a species or variety of Opposites, will be seen at once.

[b] Categ. p. 14, a 26, seq.

[c] Ibid. p. 14, a 29, seq. This second mode of *Prius* is entitled by Alexander (see Schol. (ad Metaphys. Δ.) p. 707, b. 7, Brandis) *πρότερον τῇ φύσει*. But Aristotle does not so call it here; he reserves that title for the fourth and fifth modes.

It appears that debates, Περὶ Προτέρου καὶ Ὑστέρου, were frequent in the dialectic schools of Aristotle's day as well as debates, Περὶ Ταὐτοῦ καὶ Ἑτέρου, Περὶ Ὁμοίου καὶ Ἀνομοίου, Περὶ Ταὐτότητος καὶ Ἐναντιότητος (Arist. Metaph. B. p. 995, b. 20).

demonstrations; in writing, letters are prior as compared with syllables; in speeches, the proem is prior as compared with the exposition. A fourth mode of *Prius* (which is the most remote and far-fetched) is, that the better and more honourable is *prius naturâ*. Still a fifth mode is, when, of two Relatives which reciprocate with each other as to existence, one is cause and the other effect: in such a case, the cause is said to be prior by nature to the effect.[a] For example, if it be a fact that Caius exists, the proposition "Caius exists," is a true proposition; and *vice versâ*, if the proposition "Caius exists" is a true proposition, it is a fact that Caius exists. But though from either if these you can infer the other, the truth of the proposition is the effect, and not the cause, of the reality of the fact. Hence it is correct to say that the latter is *prius naturâ*, and the former *posterius naturâ*.

This is a sort of article in a Philosophical Dictionary, tracing the various derivative senses of two very usual correlative phrases; and there is another article in the fourth book of the Metaphysica, where the derivations of the same terms are again traced out, though by roads considerably different.[b] The two terms are relatives; *Prius* implies a *Posterius*, as *Simul* implies another *Simul;* and it is an useful process to discriminate clearly the various meanings assigned to each. Aristotle has done this, not indeed clearly nor consistently with himself, but with an earnest desire to elucidate what he felt to be confused and perplexing. Yet there are few terms in his philosophy which are more misleading. Though he sets out, plainly and repeatedly the primary and literal sense of Priority, (the temporal or real), as discriminated from the various secondary and metaphorical senses, nevertheless when he comes to employ the term *Prius* in the course of his reasonings, he often does so without specifying in which sense he intends it to be understood. And as the literal sense (temporal or real priority) is the most present and familiar to every man's mind, so the term is often construed in this sense when it properly bears only the metaphorical sense. The confusion of logical or emotional priority (priority either in logical order of conception, or in esteem and respect) with priority in the order of time, involving separability of existence, is a frequent source of misunderstanding in the Aristotelian Physics and

[a] Aristot. Categ. p. 14, b. 10.

[b] Aristot. Metaphys. Δ. p. 1018, b. 11-p. 1019, a. 12. The article in the Metaphysica is better and fuller than that in the Categoriæ. In this last, *Order in Place* receives no special recognition, while we find such recognition in the Metaphysica, and we find also fuller development of the varieties of the logical or intellectual *Prius*.

Metaphysics. The order of logical antecedence and sequence, or the fact of logical coexistence, is of great importance to be understood, with a view to the proof of truth, to the disproof of error, or to the systematization of our processes of thought; but we must keep in mind that what is prior in the logical order is not for that reason prior in temporal order, or separable in real existence, or fit to be appealed to as a real Cause or Agent.[a]

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[a] In the language of Porphyry, *προϋφέστηκε* (priority in real existence) means nothing more than *προεπινοεῖται* (priority in the order of conception), Eisagoge, cc. xv., xvi.; Schol. Br. p. 6, a. 7-21.

CHAPTER IV.

DE INTERPRETATIONE.

In the preceding chapter I enumerated and discussed what Aristotle calls the Categories. We shall now proceed to the work which stands second in the aggregate called the Organon—the treatise De Interpretatione.

We have already seen that the Aristotelian Ontology distinguishes one group of varieties of *Ens* (or different meanings of the term *Ens*) as corresponding to the diversity of the ten Categories; while recognizing also another variety of *Ens* as *Truth*, with its antithesis *Non-Ens* as *Falsehood*.[a] The former group was dealt with in the preceding chapter; the latter will form the subject of the present chapter. In both, indeed, Ontology is looked at as implicated with Logic; that is, *Ens* is considered as distributed under significant names, fit to be coupled in propositions. This is the common basis both of the Categoriæ and of the treatise De Interpretatione. The whole classification of the Categories rests on the assumption of the proposition with its constituent parts, and on the different relation borne by each of the nine *genera* of predicates towards their common Subject. But in the Categoriæ no account was taken of the distinction between truth and falsehood, in the application of these predicates to the Subject. If we say of Sokrates, that he is fair, pug-nosed, brave, wise, &c., we shall predicate truly; if we say that he is black, high-nosed, cowardly, stupid, &c., we shall predicate falsely; but in each case our predicates will belong to the same Category—that of *Quale*. Whether we describe him as he now is, standing, talking, in the market-place at Athens; or whether we describe him as he is not, sitting down, singing, in Egypt—in both speeches, our predicates rank under the same Categories, *Jacere*, *Agere*, *Ubi*. No account is taken in the Categoriæ of the distinction between true and false application of predicates; we are only informed under what

[a] See above in the preceding chapter, p. 60.

number of general heads all our predicates must be included, whether our propositions be true or false in each particular case.

But this distinction between *true* and *false*, which remained unnoticed in the Categoriæ, comes into the foreground in the treatise De Interpretatione. The Proposition, or *enunciative* speech,[a] is distinguished from other varieties of speech (interrogative, precative, imperative) by its communicating what is true or what is false. It is defined to be a complex significant speech, composed of two terms at least, each in itself significant, yet neither of them, separately taken, communicating truth or falsehood. The terms constituting the Proposition are declared to be a Noun in the nominative case, as Subject, and a Verb, as Predicate; this latter essentially connoting time, in order that the synthesis of the two may become the enunciation of a fact or quasi-fact, susceptible of being believed or disbelieved. All this mode of analysing a proposition, different from the analysis thereof given or implied in the Categoriæ, is conducted with a view to bring out prominently its function of imparting true or false information. The treatise called the Categoriæ is a theory of significant names subjicible and predicable, fit to serve as elements of propositions, but not yet looked at as put together into actual propositions; while in the treatise De Interpretatione they are assumed to be put together, and a theory is given of Propositions thus completed.

Words spoken are marks significant of mental impressions associated with them both by speaker and hearer; words written are symbols of those thus uttered. Both speech and writing differ in different nations, having no natural connection with the things signified. But these last, the affections or modifications of the mind, and the facts or objects of which they are representations or likenesses, are the same to all. Words are marks primarily and directly of the first, secondarily and indirectly of the second.[b] Aristotle thus recognizes these two aspects—first, the subjective, next the objective, as belonging, both of them conjointly, to significant language, yet as logically distinguishable; the former looking to the proximate *correlatum*, the latter to the ultimate.

For this doctrine, that the mental affections of mankind, and the things or facts which they represent, are the same everywhere, though the marks whereby they are signified differ, Aristotle refers us to his treatise De Animâ, to which he says

[a] Aristot. De Interpret. p. 17, a. 1: λόγος ἀποφαντικός.

[b] Ibid. p. 16, a. 3, seq. ὧν μέντοι ταῦτα σημεῖα πρώτως, ταὐτὰ πᾶσι παθήματα τῆς ψυχῆς, καὶ ὧν ταῦτα ὁμοιώματα, πράγματα ἤδη ταὐτά.

that it properly belongs.[a] He thus recognizes the legitimate dependence of Logic on Psychology or Mental Philosophy.

That which is signified by words (either single or in combination) is some variety of these mental affections or of the facts which they represent. But the signification of a single Term is distinguished, in an important point, from the signification of that conjunction of terms which we call a Proposition. A noun, or a verb, belonging to the aggregate called a language, is associated with one and the same phantasm [b] or notion, without any conscious act of conjunction or disjunction, in the minds of speakers and hearers: when pronounced, it arrests for a certain time the flow of associated ideas, and determines the mind to dwell upon that particular group which is called its meaning.[c] But neither the noun nor the verb, singly taken, does more than this; neither one of them affirms, or denies, or communicates any information true or false. For this last purpose, we must conjoin the two together in a certain way, and make a Proposition. The signification of the Proposition is thus specifically distinct from that of either of its two component elements. It communicates what purports to be matter of fact, which may be either true or false; in other words, it implies in the speaker, and raises in the hearer, the state of belief or disbelief, which does not attach either to the noun or to the verb separately. Herein the Proposition is discriminated from other significant arrangements of words (precative, interrogative, which convey no truth or falsehood), as well as from its own component parts. Each of these parts, noun and verb, has a significance of its own; but these are the ultimate elements of speech, for the parts of the noun or of the verb have no significance at all. The Verb is

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[a] Aristot. De Interpret. p. 16, a. 8: *περὶ μὲν οὖν τούτων εἴρηται ἐν τοῖς περὶ ψυχῆς· ἄλλης γὰρ πραγματείας.* It was upon this reference, mainly, that Andronikus the Rhodian rested his opinion, that the treatise De Interpretatione was not the work of Aristotle. Andronikus contended that there was nothing in the De Animâ to justify the reference. But Ammonius in his Scholia (p. 97, Brand.) makes a sufficient reply to the objection of Andronikus. The third book De Animâ (pp. 430, 431) lays down the doctrine here alluded to. Compare Torstrick's Commentary, p. 210.

[b] Ibid. p. 16, a. 13: *τὰ μὲν οὖν ὀνόματα αὐτὰ καὶ τὰ ῥήματα ἔοικε τῷ ἄνευ διαιρέσεως καὶ συνθέσεως νοήματι, οἷον τὸ ἄνθρωπος καὶ τὸ λευκόν, ὅταν μὴ προστέθῃ τι· οὔτε γὰρ ψεῦδος οὔτε ἀληθές πω.*

[c] Ibid. p. 16, b. 19: *αὐτὰ μὲν καθ' ἑαυτὰ λεγόμενα τὰ ῥήματα ὀνόματά ἐστι καὶ σημαίνει τι (ἵστησι γὰρ ὁ λέγων τὴν διάνοιαν, καὶ ὁ ἀκούσας ἠρέμησεν) ἀλλ' εἰ ἔστιν ἢ μή, οὔπω σημαίνει,* &c.

Compare Analyt. Poster. II. xix. pp. 99, 100, where the same doctrine occurs: the movement of association is stopped, and the mind is determined to dwell upon a certain idea; one among an aggregate of runaways being arrested in flight, another halts also, and so the rest in succession, until at length the Universal, or the sum total, is detained, or "stands still" as an object of attention. Also Aristot. Problem. p. 956, b. 39.

distinguished from the Noun by connoting time, and also by always serving as predicate to some noun as subject.[a]

Aristotle intimates his opinion, distinctly and even repeatedly, upon the main question debated by Plato in the Kratylus. He lays it down that all significant speech is significant by convention only, and not by nature or as a natural instrument.[b] He tells us also that, in this treatise, he does not mean to treat of all significant speech, but only of that variety which is known as *enunciative*. This last, as declaring truth or falsehood, is the only part belonging to Logic as he conceives it; other modes of speech, the precative, imperative, interrogative, &c., belong more naturally to Rhetoric or Poetic.[c] Enunciative speech may be either simple or complex; it may be one enunciation, declaring one predicate (either in one word or in several words) of one subject; or it may comprise several such.[d] The conjunction of the predicate with the subject constitutes the variety of proposition called Affirmation; the disjunction of the same two is Negation or Denial.[e] But such conjunction or disjunction, operated by the cogitative act, between two mental states, takes place under the condition that, wherever conjunction may be enunciated, there also disjunction may be enunciated, and *vice versâ*. Whatever may be affirmed, it is possible also to deny; whatever may be denied, it is possible also to affirm.[f]

To every affirmative proposition there is thus opposed a contradictory negative proposition; to every negative a contradictory affirmative. This pair of contradictory opposites may be called an *Antiphasis;* always assuming that the predicate and subject of the two shall be really the same, without equivocation of terms—a proviso necessary to guard against troublesome puzzles started by Sophists.[g] And we must also distinguish these propositions opposite as *Contradictories*, from propositions opposite as *Contraries*. For this, it has to be observed that there is a distinction among things (*πράγματα*) as universal or singular,

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[a] Aristot. De Interpr. p. 16, b. 2, seq.

[b] Ibid. p. 16, a. 26; p. 17, a. 2.

[c] Ibid. p. 17, a. 6: *ὁ δὲ ἀποφαντικὸς τῆς νῦν θεωρίας.* See the Scholian of Ammonius, pp. 95, 96, 108, a. 27. In the last passage, Ammonius refers to a passage in one of the lost works of Theophrastus, wherein that philosopher distinguished *τὸν ἀποφαντικὸν λόγον* from the other varieties of *λόγος*, by the difference of *σχέσις*: the *ἀποφαντικὸς λόγος* was *πρὸς τὰ πράγματα*, or *objective;* the others were *πρὸς τοὺς ἀκροωμένους*, *i.e.* varying with the different varieties of hearers, or *subjective*.

[d] Ibid. p. 17, a. 15.

[e] Ibib. p. 17, a. 25.

[f] Ibid. p. 17, a. 30: *ἅπαν ἂν ἐνδέχοιτο καὶ ὃ κατέφησέ τις ἀποφῆσαι, καὶ ὃ ἀπέφησέ τις καταφῆσαι.*

[g] Ibid. p. 17, a. 33: *καὶ ἔστω ἀντίφασις τοῦτο, κατάφασις καὶ ἀπόφασις αἱ ἀντικείμεναι.*

It seems (as Ammonius observes, Schol. p. 112, a. 33) that *ἀντίφασις* in this sense was a technical term, introduced by Aristotle.

according as they are, in their nature, predicable of a number or not: *homo* is an example of the first, and *Kallias* is an example of the second. When, now, we affirm a predicate universally, we must attach the mark of universality to the subject and not to the predicate; we must say, Every man is white, No man is white. We cannot attach the mark of universality to the predicate, and say, Every man is every animal; this would be untrue.[a] An affirmation, then, is *contradictorily* opposed to a negation, when one indicates that the subject is universally taken, and the other, that the subject is taken not universally, *e.g. Omnis homo est albus, Non omnis homo est albus; Nullus homo est albus, Est aliquis homo albus.* The opposition is *contrary*, when the affirmation is universal, and the negation is also universal, *i.e.*, when the subject is marked as universally taken in each: for example, *Omnis homo est albus, Nullus homo est albus.* Of these contrary opposites, both cannot be true, but both may be false. Contradictory opposites, on the other hand, while they cannot both be true, cannot both be false; one must be false and the other true. This holds also where the subject is a singular term, as Sokrates.[b] If, however, an universal term appear as subject in the proposition *indefinitely*, that is, without any mark of universality whatever, *e.g., Est albus homo, Non est albus homo*, then the affirmative and negative are not necessarily either contrary or contradictory, though they may be so sometimes: there is no opposition, properly speaking, between them; both may alike be true. This last observation (says Aristotle) will seem strange, because many persons suppose that *Non est homo albus* is equivalent to *Nullus homo est albus;* but the meaning of the two is not the same, nor does the truth of the latter follow from that of the former,[c] since *homo* in the former may be construed as not universally taken.

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[a] Aristot. De Interpr. p. 17, a. 37-b. 14: *ἐπεὶ δ' ἐστὶ τὰ μὲν καθόλου τῶν πραγμάτων, τὰ δὲ καθ' ἕκαστον (λέγω δὲ καθόλου μὲν ὃ ἐπὶ πλειόνων πέφυκε κατηγορεῖσθαι, καθ' ἕκαστον δὲ ὃ μή, οἷον ἄνθρωπος μὲν τῶν καθόλου, Καλλίας δὲ τῶν καθ' ἕκαστον)·* &c. Ammonius (in Schol. p. 113, a. 38) says that what is predicated, either of many subjects or of one, must be *μία φύσις*.

The warning against quantifying the predicate appears in this logical treatise of Aristotle, and is repeated in the Analytica Priora, I. xxvii. p. 43, b. 17. Here we have: *οὐδεμία κατάφασις ἀληθὴς ἔσται, ἐν ῃ τοῦ κατηγορουμένου καθόλου τὸ καθόλου κατηγορεῖται, οἷον ἔστι πᾶς ἄνθρωπος πᾶν ζῷον* (b. 14).

[b] Ibid. b. 16-29.

[c] Ibid. p. 17, b. 29-37. Mr. John Stuart Mill (System of Logic, Bk. I. ch. iv. s. 4) cites and approves Dr. Whately's observation, that the recognition of a class of Propositions called *indefinite* "is a solecism, of the same nature as that committed by grammarians when in their list of genders they enumerate the *doubtful* gender. The speaker *must mean* to assert the proposition either as an universal or as a particular proposition, though he has failed to declare which."

But Aristotle would not have admitted Dr. Whately's doctrine, declaring what the speaker "*must mean.*" Aristotle fears that his class, *indefinite*, will appear im-

It thus appears that there is always one negation corresponding to one and the same affirmation; making up together the *Antiphasis*, or pair of contradictory opposites, quite distinct from contrary opposites. By *one* affirmation we mean, that in which there is one predicate only, and one subject only, whether taken universally or not universally:—

E.g. Omnis homo est albus		Non omnis homo est albus.
Est homo albus		Non est homo albus.
Nullus homo est albus		Aliquis homo est albus.

But this will only hold on the assumption that *album* signifies one and the same thing. If there be one name signifying two things not capable of being generalized into one nature, or not coming under the same definition, then the affirmation is no longer one.[a] Thus if any one applies the term *himation* to signify both horse and man, then the proposition, *Est himation album*, is not one affirmation, but two; it is either equivalent to *Est homo albus* and *Est equus albus*—or it means nothing at all; for this or that individual man is not a horse. Accordingly, in this case also, as well as in that mentioned above, it is not indispensable that one of the two propositions constituting the *Antiphasis* should be true and the other false.[b]

With these exceptions Aristotle lays it down, that, in every *Antiphasis*, one proposition must be true and the other must be false. But (he goes on to say) this is only true in regard to matters past or present; it is not true in regard to events particular and future. To admit it in regard to these latter, would be to affirm that the sequences of events are all necessary, and none of them casual or contingent; whereas we know, by our own personal experience, that many sequences depend upon

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pertinent, because many speakers are not conscious of any distinction or transition between the particular and the general. The looseness of ordinary speech and thought, which Logic is intended to bring to view and to guard against, was more present to his mind than to that of Dr. Whately; moreover, the forms of Greek speech favoured the ambiguity.

Aristotle's observation illustrates the deficiencies of common speaking, as to clearness and limitation of meaning, at the time when he began to theorize on propositions.

I think that Whately's assumption—"the speaker *must mean*"—is analogous to the assumption on which Sir W. Hamilton founds his proposal for explicit quantification of the predicate, viz., that the speaker *must*, implicitly or mentally, quantify the predicate; and that his speech ought to be such as to make such quantification explicit. Mr. Mill has shewn elsewhere that this assumption of Sir. W. Hamilton's is incorrect.

[a] Aristot. De Interpr. p. 18, a. 13, seq.: *μία δέ ἐστι κατάφασις καὶ ἀπόφασις ἡ ἓν καθ' ἑνὸς σημαίνουσα, ἢ καθόλου ὄντος καθόλου ἢ μὴ ὁμοίως, οἷον πᾶς ἄνθρωπος λευκός ἐστιν . . . εἰ τὸ λευκὸν ἓν σημαίνει. εἰ δὲ δυοῖν ἓν ὄνομα κεῖται, ἐξ ὧν μή ἐστιν ἕν, οὐ μία κατάφασις*, &c., and the Scholion of Ammonius, p. 116, b. 6, seq.

[b] Aristot. De Interpr. p. 18, a. 26. The example which Aristotle here gives is one of a *subject* designated by an equivocal name; when he had begun with the *predicate*. It would have been more pertinent if he had said at first, *εἰ ὁ ἄνθρωπος ἓν σημαίνει*.

our deliberation and volition, and are therefore not necessary. If all future sequences are necessary, deliberation on our part must be useless. We must therefore (he continues) recognize one class of sequences which are not uniform—not predetermined by antecedents; events which *may* happen, but which also *may not* happen, for they will not happen. Thus, my coat *may* be cut into two halves, but it never *will* be so cut; it will wear out without any such bisection occurring.[a]

If you affirm the reality of a fact past or present, your affirmation is of necessity determinately true, or it is determinately false, *i.e.* the contradictory negation is determinately true. But if you affirm the reality of a fact to come, then your affirmation is not by necessity determinately true, nor is the contradictory negation determinately true. Neither the one nor the other separately is true: nothing is true except the disjunctive antithesis as a whole, including both. If you say, To-morrow there will either be a sea-fight, or there will not be a sea-fight, this disjunctive or indeterminate proposition, taken as a whole, will be true. Yet neither of its constituent parts will be determinately true; neither the proposition, To-morrow there will be a sea-fight, nor the proposition, To-morrow there will not be a sea-fight. But if you speak with regard to past or present—if you say, Yesterday either there was a sea-fight or there was not a sea-fight—then not only will the disjunctive as a whole be true, but also one or other of its parts will be determinately true.[b]

This remarkable logical distinction is founded on Aristotle's ontological or physical doctrines respecting the sequence and conjunction of events. He held (as we shall see more fully in the Physica and other treatises) that sequences throughout the Kosmos were to a certain extent regular, to a certain extent irregular. The exterior sphere of the Kosmos (the *Aplanēs*) with the countless number of fixed stars fastened into it, was a type of regularity and uniformity; eternal and ever moving in the same circular orbit, by necessity of its own nature, and without any potentiality of doing otherwise. But the earth and the elemental bodies, organized and unorganized, below the lunar sphere and in the interior of the Kosmos, were of inferior perfection and of very different nature. They were indeed in part governed and pervaded by the move-

[a] Aristot. De Interpr. p. 18, a. 28-p. 19, b. 4.

[b] Ibid. p. 18, b. 29. Ammonius (Scholia ad De Interpret. p. 119, bb. 18, 28, seq.) expresses Aristotle's meaning in terms more distinct than Aristotle himself: μὴ πάντως ἔχειν τὸ ἕτερον μόριον τῆς ἀντιφάσεως ἀφωρισμένως ἀληθεῦον, &c. (b. 43).

ment and influence of the celestial substance within which they were comprehended, and from which they borrowed their Form or constituent essence; but they held this Form implicated with Matter, *i.e.* the principle of potentiality, change, irregularity, generation, and destruction, &c. There are thus in these sublunary bodies both constant tendencies and variable tendencies. The *constant* Aristotle calls 'Nature;' which always aspires to Good, or to perpetual renovation of Forms as perfect as may be, though impeded in this work by adverse influences, and therefore never producing any thing but individuals comparatively defective and sure to perish. The *variable* he calls 'Spontaneity' and 'Chance,' forming an independent agency inseparably accompanying Nature—always modifying, distorting, frustrating, the full purposes of Nature. Moreover, the different natural agencies often interfere with each other, while the irregular tendency interferes with them all. So far as Nature acts, in each of her distinct agencies, the phenomena before us are regular and predictable; all that is uniform, and all that (without being quite uniform) recurs usually or frequently, is her work. But, besides and along with Nature, there is the agency of Chance and Spontaneity, which is essentially irregular and unpredictable. Under this agency there are possibilities both for and against; either of two alternative events may happen.

It is with a view to this doctrine about the variable kosmical agencies or potentialities that Aristotle lays down the logical doctrine now before us, distinguishing propositions affirming particular facts past or present, from propositions affirming particular facts future. In both cases alike, the disjunctive antithesis, as a whole, is necessarily true. Either there was a sea-fight yesterday, or there was not a sea-fight yesterday: Either there will be a sea-fight to-morrow, or there will not be a sea-fight to-morrow—both these disjunctives alike are necessarily true. There is, however, a difference between the one disjunctive couple and the other, when we take the affirmation separately or the negation separately. If we say, There will be a sea-fight to-morrow, that proposition is not necessarily true nor is it necessarily false; to say that it is either the one or the other (Aristotle argues) would imply that every thing in nature happened by necessary agency—that the casual, the potential, the *may be or may not be*, is stopped out and foreclosed. But this last is really the case, in regard to a past fact. There was a sea-fight yesterday, is a proposition either necessarily true or necessarily false. Here the antecedent agencies have already

spent themselves, blended, and become realized in one or other of the two alternative determinate results. There is no potentiality any longer open; all the antecedent potentiality has been foreclosed. The proposition therefore is either necessarily true or necessarily false; though perhaps we may not know whether it is the one or the other.

In defending his position regarding this question, Aristotle denies (what he represents his opponents as maintaining) that all events happen by necessity. He points to the notorious fact that we deliberate and take counsel habitually, and that the event is frequently modified, according as we adopt one mode of conduct or another; which could not be (he contends), if the event could be declared beforehand by a proposition necessarily or determinately true. What Aristotle means by *necessity*, however, is at bottom nothing else than constant sequence or conjunction, conceived by him as necessary, because the fixed ends which Nature is aiming at can only be attained by certain fixed means. To this he opposes Spontaneity and Chance, disturbing forces essentially inconstant and irregular; admitting, indeed, of being recorded when they *have* produced effects in the past, yet defying all power of prediction as to those effects which they *will* produce in the future. Hence arises the radical distinction that he draws in Logic, between the truth of propositions relating to the past (or present) and to the future.

But this logical distinction cannot be sustained, because his metaphysical doctrine (on which it is founded) respecting the essentially irregular or casual, is not defensible. His opponents would refuse to grant that there is any agency essentially or in itself irregular, casual, and unpredictable.[a] The aggregate of

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[a] The Stoics were opposed to Aristotle on this point. They recognized no logical difference in the character of the Antiphasis, whether applied to past and present, or to future. Nikostratus defended the thesis of Aristotle against them. See the Scholia of Simplikius on the Categoriæ, p. 87, b. 30-p. 88, a. 24. *αἱ γὰρ εἰς τὸν μέλλοντα χρόνον ἐγκλινόμεναι προτάσεις οὔτε ἀληθεῖς εἰσὶν οὔτε ψευδεῖς διὰ τὴν τοῦ ἐνδεχομένου φύσιν.*

The remarks of Hobbes, upon the question here discussed by Aristotle, well deserve to be transcribed (De Corpore, part II. ch. x. s. 5):—

"But here, perhaps, some man may ask whether those future things, which are called *contingents*, are necessary. I say, therefore, that generally all contingents have their necessary causes, but are called contingents in respect of other events, upon which they do not depend; as the rain, which shall be to-morrow, shall be necessary, that is, from necessary causes; but we think and say, it happens by chance, because we do not yet perceive the causes thereof, though they exist now. For men commonly call that *casual* or *contingent*, whereof they do not perceive the necessary cause; and in the same manner they use to speak of things past, when not knowing whether a thing be done or no, they say, it is possible it never was done.

"Wherefore, all propositions concerning future things, contingent or not contingent—as this, *It will rain to-morrow*, or this, *To-morrow the sun will rise*—are either necessarily true, or necessarily false; but we call them contingent, be-

Nature consists of a variety of sequences, each of them constant and regular, though intermixed, co-operating, and conflicting with each other, in such manner that the resulting effects are difficult to refer to their respective causes, and are not to be calculated beforehand except by the highest scientific efforts; often, not by any scientific efforts. We must dismiss the hypothesis of Aristotle, assuming agencies essentially irregular and unpredictable, either as to the past or as to the future. The past has been brought about by agencies all regular, however multifarious and conflicting, and the future will be brought about by the like: there is no such distinction of principle as that which Aristotle lays down between propositions respecting the past and propositions respecting the future.

There is, indeed, one distinction between inferences as to the past and inferences as to the future, which may have contributed to suggest, though it will not justify, the position here laid down by Aristotle. In regard to the disjunctive—To-morrow there will be a sea-fight, or there will not be a sea-fight—nothing more trustworthy than inference or anticipation is practicable: the anticipation of a sagacious man with full knowledge is more likely to prove correct than that of a stupid man with little knowledge; yet both are alike anticipations, unverifiable at the present moment. But if we turn to the other disjunctive—Yesterday there was a sea-fight, or there was not a sea-fight—we are no longer in the same position. The two disputants,

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cause we do not yet know whether they be true or false; whereas their verity depends not upon our knowledge, but upon the foregoing of their causes. But there are some, who, though they confess this whole proposition, *To-morrow it will either rain or not rain*, to be true, yet they will not acknowledge the parts of it, as *To-morrow it will rain*, or *To-morrow it will not rain*, to be either of them true by itself; because they say neither this nor that is true *determinately*. But what is this *determinately true*, but true *upon our knowledge*, or evidently true? And therefore they say no more, but that it is not yet known whether it be true or no; but they say it more obscurely, and darken the evidence of the truth with the same words with which they endeavour to hide their own ignorance."

Compare also the fuller elucidation of the subject given by Mr. John Stuart Mill, in his System of Logic, Bk. III. ch. xvii. s. 2:—"An event occurring by chance may be better described as a coincidence from which we have no ground to infer an uniformity; the occurrence of an event in certain circumstances, without our having reason on that account to infer that it will happen again in those circumstances. This, however, when looked closely into, implies that the enumeration of the circumstances is not complete. Whatever the fact was, since it has occurred once, we may be sure that if *all* the circumstances were repeated, it would occur again; and not only if all, but there is some particular portion of those circumstances, on which the phenomenon is invariably consequent. With most of them, however, it is not connected in any permanent manner: its conjunction with those is said to be the effect of chance, to be merely casual. Facts casually conjoined are separately the effect of causes, and therefore of laws; but of different causes, and causes not connected by any law. It is incorrect then to say that any phenomenon is produced by chance; but we may say that two or more phenomena are conjoined by chance, that they coexist or succeed one another only by chance."

supposed to declare thus, may have been far off, and may have no other means of deciding the doubt than inference. But the inference here is not unverifiable: there exist, or may exist, witnesses or spectators of the two fleets, who can give direct attestation of the reality, and can either confirm or refute the inference, negative or affirmative, made by an absentee. Thus the proposition, Yesterday there was a sea-fight, or the other, Yesterday there was not a sea-fight, will be verifiable or determinably true. There are indeed many inferences as to the past, in regard to which no direct evidence is attainable. Still this is an accident; for such direct evidence may always be supposed or imagined as capable of being brought into court. But, in respect to the future, verification is out of the question; we are confined to the region of inference, well or ill-supported. Here, then, we have a material distinction between the past and the future. It was probably present to the mind of Aristotle, though he misconceives its real extent of operation, and makes it subservient to his still more comprehensive classification of the different contemporaneous agencies (regular and irregular) which he supposes to pervade the Kosmos.

In the treatise before us, he next proceeds to state what collocation of the negative particle constitutes the special or legitimate negation to any given affirmation, or what are the real forms of proposition, standing in contradictory opposition to certain other forms, so as to make up one *Antiphasis*.[a] The simplest proposition must include a noun and a verb, either definite or indefinite: *non homo*, is a specimen of an indefinite noun—*non currit*, of an indefinite verb. There must be, in any one proposition, one subject and one predicate; even the indefinite noun or verb signifies, in a certain sense, one thing. Each affirmation comprises a noun, or an indefinite noun, with a verb; the special corresponding or contradictory negation (making up the *Antiphasis* along with the former) comprises a noun (or an indefinite noun) with an indefinite verb. The simplest proposition is—

Affirmative.		*Contradictory Negative.*
Est homo		Non est homo.
Est non homo		Non est non homo.

Here are only two pairs of antithetic propositions, or one quaternion. The above is an indefinite proposition (which may be either universal or not). When we universalize it, or turn it into an universal proposition, we have—

[a] Aristot. De Interpr. p. 19, b. 5, seq.

Affirmative.	*Contradictory Negative.*
Est omnis homo	Non est omnis homo.
Est omnis non homo	Non est omnis non homo.

The above are specimens of the smallest proposition; but when we regard larger propositions, such as those (called *tertii adjacentis*) where there are two terms besides *est*, the collocation of the negative particle becomes more complicated, and requires fuller illustration. Take, as an example, the affirmative *Est justus homo*, the true negation of this is, *Non est justus homo*. In these two propositions, *homo* is the subject; but we may join the negative with it, and we may consider *non homo*, not less than *homo*, as a distinct subject for predication, affirmative or negative. Farther, we may attach *est* and *non est* either to *justus* or to *non justus* as the predicate of the proposition, with either *homo*, or *non homo*, as subject. We shall thus obtain a double mode of antithesis, or two distinct quaternions, each containing two pairs of contradictory propositions. The second pair of the first quaternion will not be in the same relation as the second pair of the second quaternion, to the proposition just mentioned, viz.—(A) *Est justus homo;* with its negative, (B) *Non est justice homo.*[a]

First, let us assume *homo* as subject. We have then

(QUATERNION I.)

(A) Est justus homo	(B) Non est justus homo.
(D) Non est non justus homo	(C) Est non justus homo.

Examining the relation borne by the last two among these four propositions (C and D), to the first two (A and B), the simple affirmative and negative, we see that B is the legitimate negative of A, and D that of C. We farther see that B is a consequence of C, and D a consequence of A, but not *vice versâ:* that is, if C is true, B must certainly be true; but we cannot infer, because B is true, that C must also be true: while, if A is true, D must also be true; but D may perhaps be true, though A be not true. In other words, the relation of D to A and of C to B,

[a] Aristot. De Interpr. p. 19, b. 19. *ὅταν δὲ τὸ ἔστι τρίτον προσκατηγορῆται, ἤδη διχῶς λέγονται αἱ ἀντιθέσεις· λέγω δὲ οἷον ἔστι δίκαιος ἄνθρωπος· τὸ ἔστι τρίτον φημὶ συγκεῖσθαι ὄνομα ἢ ῥῆμα ἐν τῇ καταφάσει. ὥστε διὰ τοῦτο τέτταρα ἔσται ταῦτα, ὧν τὰ μὲν δύο πρὸς τὴν κατάφασιν καὶ ἀπόφασιν ἕξει κατὰ τὸ στοιχοῦν ὡς αἱ στερήσεις, τὰ δὲ δύο, οὔ. [λέγω δὲ ὅτι τὸ ἔστιν ἢ τῷ δικαίῳ προσκείσεται ἢ τῷ οὐ δικαίῳ], ὥστε καὶ ἡ ἀπόφασις. τέτταρα οὖν ἔσται. νοοῦμεν δὲ τὸ λεγόμενον ἐκ τῶν ὑπογεγραμμένων.* In this passage the words which I have enclosed between brackets are altered by Waitz: I shall state presently what I think of his alteration. Following upon these words there ought to be, and it seems from Ammonius (Schol. p. 121, a. 20) that there once was, a scheme or table arranging the four propositions in the order and disposition which we read in the Analytica Priora, I. xlvi. p. 51, b. 37, and which I shall here follow. But no such table now appears in our text; we have only an enumeration of the four propositions, in a different order, and then a reference to the Analytica.

is the same as it would be if the privative term *injustus* were substituted in place of *non justus; i.e.* if the proposition C (*Est injustus homo*) be true, the other proposition B (*Non est justus homo*) must certainly be true, but the inference will not hold conversely; while if the proposition A (*Est justus homo*) be true, it must also be true to say D (*Non est injustus homo*), but not *vice versâ.*[a]

Such is the result obtained when we take *homo* as the subject of the proposition; we get four propositions, of which the two last (C and D) stand to the two first (B and A) in the same relation as if they (C and D) were privative propositions. But if, instead of *homo*, we take *non homo* as Subject of the proposition (*justus* or *non justus* being predicates as before), we shall then obtain two other pairs of contradictory propositions; and the second pair of this new quaternion will not stand in that same relation to these same propositions B and A. We shall then find that, instead of B and A, we have a different negative and a different affirmative, as the appropriate correlates to the third and fourth propositions. The new quaternion of propositions, with *non homo* as subject, will stand thus—

(QUATERNION II.)

(E) Est justus non homo ... ... (F) Non est justus non homo.
(H) Non est non justus non homo ... (G) Est non justus non homo.[b]

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[a] Referring to the words cited in the preceding note, I construe *τὰ δὲ δύο, οὔ* as Boethius does (II. pp. 384-385), and not in agreement with Ammonius (Schol. p. 122, a. 26, Br.), who, however, is followed both by Julius Pacius and Waitz (p. 344). I think it impossible that these words, *τὰ δὲ δύο, οὔ*, can mean (as Ammonius thinks) the *κατάφασις* and *ἀπόφασις* themselves, since the very point which Aristotle is affirming is the relation of these words, *πρὸς τὴν κατάφασιν καὶ ἀπόφασιν*, *i.e.* to the affirmative and negative started from—

(A) Est justus homo ... ... (B) Non est justus homo.

As the words *τὰ μὲν δύο* refer to the second contradictory pair (that is, C and D) in the *first* Quaternion, so the words *τὰ δὲ δύο, οὔ* designate the second contradictory pair (G and H) in the *second* Quaternion. Though G and H are included in the second Quaternion, they are here designated by the negative relation (*τὰ δὲ δύο, οὔ*) which they bear to A and B, the first contradictory pair of the *first* Quaternion. *διχῶς λέγονται αἱ ἀντιθέσεις* (line 20) is explained and illustrated by line 37—*αὗται μὲν οὖν δύο ἀντίκεινται, ἄλλαι δὲ δύο πρὸς τὸ οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι προστεθέν.* Lastly, Aristotle expressly states that the second Quaternion will stand independently and by itself (p. 20, a. 1), having noticed it in the beginning only in relation to the first.

[b] Aristot. De Interpr. p. 19, b. 36. *αὗται μὲν οὖν δύο ἀντίκεινται* (the two pairs —A B and C D —of the first quaternion), *ἄλλαι δὲ δύο πρὸς τὸ οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι προστεθέν·*

(E) *ἔστι δίκαιος οὐκ ἄνθρωπος* ... ... (F) *οὐκ ἔστι δίκαιος οὐκ ἄνθρωπος.*
(H) *οὐκ ἔστιν οὐ δίκαιος οὐκ ἄνθρωπος* ... ... (G) *ἔστιν οὐ δίκαιος οὐκ ἄνθρωπος.*

πλείους δὲ τούτων οὐκ ἔσονται ἀντιθέσεις. αὗται δὲ χωρὶς ἐκείνων αὐταὶ καθ' ἑαυτὰς ἔσονται, ὡς ὀνόματι τῷ οὐκ ἄνθρωπος χρώμεναι. The second *αὗται* alludes to this last quaternion, *ἐκείνων* to the first. I have, as in the former case, transposed propositions three and four of this second quaternion, in order that the relation of G to F and of H to E may be more easily discerned.

There are few chapters in Aristotle more obscure and puzzling than the tenth

Here we see that propositions G and H do not stand to B and A in the same relations as C and D stand to B and A; but that they stand in that same relation to two perfectly different propositions, F and E. That is, if in place of *non justis*, in propositions G and H, we substitute the privative term *injustus* (thus turning G into *Est injustus non homo*, and turning H into *Non est injustus non homo*), the relation of G, when thus altered, to F, and the relation of H, when thus altered, to E, will be the same as it was before. Or, in other words, if G be true, F will certainly be true, but not *vice versâ;* and if E be true, H will certainly be true, but not *vice versâ*.

The propositions which we have hitherto studied have been indefinite; that is, they might be universal or not. But if we attach to them the sign of universality, and construe them as universals, all that we have said about them would still continue to be true, except that the propositions which are diametrically (or diagonally) opposed would not be both true in so many instances. Thus, let us take the first quaternion of propositions, in which *est* is attached to *homo*, and let us construe these propositions as universal. They will stand thus—

(A) Omnis est homo justus ... ... (B) Non omnis est homo justus.
(D) Non omnis est homo non justus ... ... (C) Omnis est homo non justus.

In these propositions, as in the others before noticed, the same relation prevails between C and B, and between A and D; if C be true, B also is true, but not *vice versâ;* if A be true, D also will be true, but not *vice versâ*. But the propositions diagonally opposed will not be so often alike true:[a] thus, if A be true (*Omnis est homo justus*), C cannot be true (*Omnis est homo non justus*); whereas in the former quaternion of propositions (indefinite, and therefore capable of being construed as not universal) A and C might both be alike true.[b]

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chapter of the De Interpretatione. It was found so by Alexander, Herminus, Porphyry, Ammonius, and all the Scholiasts. Ammonius (Schol. pp. 121, 122, Br.) reports these doubts, and complains of it as a riddle almost insoluble. The difficulties remain, even after the long note of Waitz, and the literal translation of M. Barthélemy St. Hilaire.

[a] Aristot. De Interpret. p. 19, b. 35. *πλὴν οὐχ ὁμοίως τὰς κατὰ διάμετρον ἐνδέχεται συναληθεύειν· ἐνδέχεται δὲ ποτέ.* The "diameter" or "diagonal" is to be understood with reference to the scheme or square mentioned p. 119, note, the related propositions standing at the angles, as above.

[b] The Scholion of Ammonius, p. 123, a. 17, Br., explains this very obscure passage: *ἀλλ' ἐπὶ μὲν τῶν ἀπροσδιορίστων* (indefinite propositions, such as may be construed either as universal or as particular), *κατὰ τὴν ἐνδεχομένην ὕλην τάς τε καταφάσεις* (of the propositions diagonally opposite), *συναληθεύειν ἀλλήλαις συμβαίνει καὶ τὰς ἀποφάσεις, ἅτε ταῖς μερικαῖς ἰσοδυναμούσας. ἐπὶ δὲ τῶν προσδιωρισμένων* (those propositions where the mark of universality is tacked to the Subject), *περὶ ὧν νυνὶ αὐτῷ ὁ λόγος, τῆς καθόλου καταφάσεως καὶ τῆς ἐπὶ μέρους ἀποφάσεως, τὰς μὲν καταφάσεις ἀδύνατον συναληθεῦσαι καθ' οἱανδήποτε ὕλην, τὰς μέντοι ἀποφάσεις συμβαίνει συναληθεύειν κατὰ μόνην τὴν ἐνδεχομένην·* &c.

It is thus that Aristotle explains the distinctions of meaning in propositions, arising out of the altered collocation of the negative particle; the distinction between (1) *Non est justus*, (2) *Est non justus*, (3) *Est injustus*. The first of the three is the only true negative, corresponding to the affirmative *Est justus*. The second is not a negative at all, but an affirmative (ἐκ μεταθέσεως, or by transposition, as Theophrastus afterwards called it). The third is an affirmative, but privative. Both the second and the third stand related in the same manner to the first; that is, the truth of the first is a necessary consequence either of the second or of the third, but neither of these can be certainly inferred from the first. This is explained still more clearly in the Prior Analytics; to which Aristotle here makes express reference.[a]

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[a] Aristot. De Interpr. p. 19, b. 31. ταῦτα μὲν οὖν, ὥσπερ ἐν τοῖς Ἀναλυτικοῖς λέγεται, οὕτω τέτακται.

Waitz in his note suggests that instead of τέτακται we ought to read τετάχθω. But if we suppose that the formal table once existed in the text, in an order of arrangement agreeing with the Analytica, this conjectural change would be unnecessary.

Waitz has made some changes in the text of this chapter, which appear to me partly for the better, partly not for the better. Both Bekker and Bussemaker (Firmin Didot) retain the old text; but this old text was a puzzle to the ancient commentators, even anterior to Alexander of Aphrodisias. I will here give first the text of Bekker, next the changes made by Waitz: my own opinion does not wholly coincide with either. I shall cite the text from p. 19, b. 19, leaving out the portion between lines 30 and 36, which does not bear upon the matter here discussed, while it obscures the legitimate sequence of Aristotle's reasoning.

(Bekker.)—Ὅταν δὲ τὸ ἔστι τρίτον προσκατηγορῆται, ἤδη διχῶς λέγονται αἱ ἀντιθέσεις. λέγω δὲ οἷον ἔστι δίκαιος ἄνθρωπος· τὸ ἔστι τρίτον φημὶ συγκεῖσθαι ὄνομα ἢ ῥῆμα ἐν τῇ καταφάσει. ὥστε διὰ τοῦτο τέτταρα ἔσται ταῦτα, ὧν τὰ μὲν δύο πρὸς τὴν κατάφασιν καὶ ἀπόφασιν ἕξει κατὰ τὸ στοιχοῦν ὡς αἱ στερήσεις, τὰ δὲ δύο οὔ. λέγω δ' ὅτι τὸ ἔστιν ἢ τῷ δικαίῳ προσκείσεται ἢ τῷ οὐ δικαίῳ (25), ὥστε καὶ ἡ ἀπόφασις. τέτταρα οὖν ἔσται. (Here follow the first pairs of Antitheses, or the first Quaternion of propositions in the order as given)—

(A) ἔστι δίκαιος ἄνθρωπος ... ... (B) οὐκ ἔστι δίκαιος ἄνθρωπος.
(C) ἔστιν οὐ δίκαιος ἄνθρωπος ... ... (D) οὐκ ἔστιν οὐ δίκαιος ἄνθρωπος.

τὸ γὰρ ἔστιν ἐνταῦθα καὶ τὸ οὐκ ἔστι τῷ δικαίῳ προσκείσεται καὶ τῷ οὐ δικαίῳ (30).—Αὗται μὲν οὖν δύο ἀντίκεινται, ἄλλαι δὲ δύο πρὸς τὸ οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι (38) προστεθέν. (Here follow the second pairs of Antitheses, or the second Quaternion of propositions, again in the order from which I have departed above)—

(E) ἔστι δίκαιος οὐκ ἄνθρωπος ... ... (F) Οὐκ ἔστι δίκαιος οὐκ ἄνθρωπος.
(G) ἔστιν οὐ δίκαιος οὐκ ἄνθρωπος ... (H) Οὐκ ἔστιν οὐ δίκαιος οὐκ ἄνθρωπος.

πλείους δὲ τούτων οὐκ ἔσονται ἀντιθέσεις. αὗται δὲ (the second Quaternion) χωρὶς ἐκείνων (first Quaternion) αὐταὶ καθ' ἑαυτὰς ἔσονται, ὡς ὀνόματι τῷ οὐκ ἄνθρωπος χρώμεναι.

In this text Waitz makes three alterations:—1. In line 24, instead of ἢ τῷ δικαίῳ προσκείσεται ἢ τῷ οὐ δικαίῳ—he reads, ἢ τῷ ἀνθρώπῳ προσκείσεται ἢ τῷ οὐκ ἀνθρώπῳ.

2. In line 30 he makes a similar change; instead of τῷ δικαίῳ προσκείσεται καὶ τῷ οὐ δικαίῳ—he reads, τῷ ἀνθρώπῳ προσκείσεται καὶ τῷ οὐκ ἀνθρώπῳ.

In line 38, instead of προστεθέν, he reads προστεθέντος.

Of these three alterations the first appears to me good, but insufficient; the second not good, though the passage as it stands in Bekker requires amendment; and the third, a change for the worse.

The purpose of Aristotle is here twofold. First, to give the reason why, when the propositions were *tertii adjacentis*,

After this very subtle and obscure distinction between propositions *secundi adjacentis*, and those *tertii adjacentis*, in respect to

there were two Quaternions or four couples of antithetical propositions; whereas in propositions *secundi adjacentis*, there was only one Quaternion or two couples of antithetical propositions. Next, to assign the distinction between the first and the second Quaternion in propositions *tertii adjacentis*.

Now the first of these two purposes is marked out in line 25, which I think we ought to read not by substituting the words of Waitz in place of the words of Bekker, but by retaining the words of Bekker and inserting the words of Waitz as an addition to them. The passage after such addition will stand thus—*λέγω δ' ὅτι τὸ ἔστιν ἢ τῷ δικαίῳ προσκείσεται ἢ τῷ οὐ δικαίῳ, καὶ ἢ τῷ ἀνθρώπῳ ἢ τῷ οὐκ ἀνθρώπῳ, ὥστε καὶ ἡ ἀπόφασις. τέτταρα οὖν ἔσται.* Here Aristotle declares the *reason why* (*οὖν*) there come to be four couples of propositions; that reason is, because *ἔστι* and *οὐκ ἔστι* may be joined either with *δίκαιος* or with *οὐ δίκαιος*, and either with *ἄνθρωπος* or with *οὐκ ἄνθρωπος*. Both these alternatives must be specified in order to make out a reason why there are two Quaternions or four couples of antithetical propositions. But the passage, as read by Bekker, gives only one of these alternatives, while the passage, as read by Waitz, gives only the other. Accordingly, neither of them separately is sufficient; but both of them taken together furnish the reason required, and thus answer Aristotle's purpose.

Aristotle now proceeds to enunciate the first of the two Quaternions, and then proceeds to line 30, where the reading of Bekker is irrelevant and unmeaning; but the amendment of Waitz appears to me still worse, being positively incorrect in statement of fact. Waitz reads *τὸ γὰρ ἔστιν ἐνταῦθα* (in the first Quaternion, which has just been enunciated) *καὶ τὸ οὐκ ἔστιν τῷ ἀνθρώπῳ προσκείσεται καὶ τῷ οὐκ ἀνθρώπῳ.* These last words are incorrect in fact, for *οὐκ ἄνθρωπος* does not appear in the first Quaternion, but is reserved for the second. While the reading of Waitz is thus evidently wrong, that of Bekker asserts nothing to the purpose. It is useless to tell us merely that *ἔστιν* and *οὐκ ἔστιν* attach both to *δίκαιος* and to *οὐ δίκαιος* in this first Quaternion (*ἐνταῦθα*), because that characteristic is equally true of the second Quaternion (presently to follow), and therefore constitutes no distinction between the two. To bring out the meaning intended by Aristotle I think we ought here also to retain the words of Bekker, and to add after them some, though not all, of the words of Waitz. The passage would then stand thus—*τὸ γὰρ ἔστιν ἐνταῦθα καὶ τὸ οὐκ ἔστι τῷ δικαίῳ προσκείσεται καὶ τῷ οὐ δικαίῳ, καὶ τῷ ἀνθρώπῳ, ἀλλ' οὐ τῷ οὐκ ἀνθρώπῳ.* Or perhaps *καὶ οὐ τῷ οὐκ ἀνθρώπῳ* might suffice in the last clause (being a smaller change), though *ἀλλ' οὐ* seem the proper terms to declare the meaning. In the reading which I propose, the sequence intended by Aristotle is clear and intelligible. Having first told us that *ἔστιν* and *οὐκ ἔστι*, being joined alternately with *δίκαιος* and with *οὐ δίκαιος*, and also with *ἄνθρωπος* and *οὐκ ἄνθρωπος*, make up two Quaternions, he proceeds to enunciate the distinctive character belonging to the first Quaternion of the two, viz., that in it *ἔστι* and *οὐκ ἔστιν* are joined both with *δίκαιος* and *οὐ δίκαιος*, and also with *ἄνθρωπος*, *but not with οὐκ ἄνθρωπος*. This is exactly the truth.

Aristotle next proceeds to the second Quaternion, where he points out, as the characteristic distinction, that *οὐκ ἄνθρωπος* comes in and *ἄνθρωπος* disappears, while *δίκαιος* and *οὐ δίκαιος* remain included, as in the first. This is declared plainly by Aristotle in line 37:—*αὗται μὲν οὖν δύο ἀντίκεινται* (referring to the two pairs of antithetical propositions in the first Quaternion), *ἄλλαι δὲ πρὸς τὸ οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι προστεθέν· ἔστι δίκαιος οὐκ ἄνθρωπος-οὐκ ἔστι δίκαιος οὐκ ἄνθρωπος, ἔστιν οὐ δίκαιος οὐκ ἄνθρωπος-οὐκ ἔστιν οὐ δίκαιος οὐκ ἄνθρωπος.* When we read these words, *ἄλλαι δὲ δύο πρὸς τὸ οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι προστεθέν*, as applied to the second Quaternion, we see that there must have been some words preceding which excluded *οὐκ ἄνθρωπος* from the first Quaternion. Waitz contends for the necessity of changing *προστεθέν* into *προστεθέντος*. I do not concur with his reasons for the change; the words that follow, p. 20, line 2, *ὡς ὀνόματι τῷ οὐκ ἄνθρωπος χρώμεναι* (*προσχρώμεναι*), are a reasonable justification of *προστεθέν*—*οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι προστεθέν* being very analogous to *οὐκ ἄνθρωπος ὡς ὄνομα*.

This long note, for the purpose of restoring clearness to an obscure text, will appear amply justified if the reader will turn to the perplexities and complaints of the ancient Scholiasts, revealed by Ammonius and Boethius. Even earlier than the time of Alexander (Schol.

the application of the negative, Aristotle touches on the relation of *contrariety* between propositions. The universal affirmation *Omne est animal justum* has for its contrary *Nullum est animal justum.* It is plain that both these propositions will never be true at once. But the negatives or contradictories of both may well be true at once: thus, *Non omne animal est justum* (the contradictory of the first) and *Est aliquid animal justum* (the contradictory of the second) may be and are both alike true. If the affirmative proposition *Omnis homo est non justus* be true, the negative *Nullus est homo justus* must also be true; if the affirmative *Est aliquis homo justus* be true, the negative *Non omnis homo est non justus* must also be true. In singular propositions, wherever the negative or denial is true, the indefinite affirmative (ἐκ μεταθέσεως, in the language of Theophrastus) corresponding to it will also be true; in universal propositions, the same will not always hold. Thus, if you ask, Is Sokrates wise? and receive for answer No, you are warranted in affirming, Sokrates is not wise (the indefinite affirmation). But if you ask, Are all men wise? and the answer is No, you are not warranted in affirming, All men are not wise. This last is the contrary of the proposition, All men are wise; and two contraries may both be false. You are warranted in declaring only the contradictory negative, Not all men are wise.[a]

Neither the indefinite noun (οὐκ ἄνθρωπος) nor the indefinite verb (οὐ τρέχει—οὐ δίκαιος) is a real and true negation, though it appears to be such. For every negation ought to be either true or false; but *non homo*, if nothing be appended to it, is not more true or false (indeed less so) than *homo.*[b]

The transposition of substantive and adjective makes no difference in the meaning of the phrase; *Est albus homo* is equivalent to *Est homo albus.* If it were not equivalent, there would be two negations corresponding to the same affirmation; but we have shown that there can be only one negation corresponding to one affirmation, so as to make up an *Antiphasis.*[c]

In one and the same proposition, it is indispensable that the

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p. 122, b. 47) there was divergence in the MSS. of Aristotle; several read τῷ δικαίῳ (p. 19, b. 25), several others read τῷ ἀνθρώπῳ. I think that all of them were right in what they retained, and wrong by omission only or mainly.

[a] Aristot. De Interpret. p. 20, a. 16-30.

[b] Ibid. a. 31, seq.

[c] Ibid. b. 1-12. That ἐστὶ λευκὸς ἄνθρωπος, and ἐστὶν ἄνθρωπος λευκός, mean exactly the same, neither more nor less—we might have supposed that Aristotle would have asserted without any proof; that he would have been content ἀπὸ τῶν πραγμάτων πιστοῦσθαι (to use the phrase of Ammonius in a portion of the Scholia, p. 121, a. 27). But he prefers to deduce it as a corollary from a general doctrine much less evident than the statement itself; and after all, his deduction is not conclusive, as Waitz has already remarked (ad Organ. I. p. 351).

subject be one and the predicate one; if not, the proposition will not be one, but two or more. Both the subject and the predicate indeed may consist of several words; but in each case the several words must coalesce to make one total unity; otherwise the proposition will not be one. Thus, we may predicate of man—*animal, bipes, mansuetum;* but these three coalesce into one, so that the proposition will be a single one. On the other hand the three terms *homo, albus, ambulans,* do not coalesce into one; and therefore, if we predicate all respecting the same subject, or if we affirm the same predicate respecting all three, expressing them all by one word, the proposition will not be one, but several.[a]

Aristotle follows this up by a remark interesting to note, because we see how much his generalities were intended to bear upon the actual practice of his day, in regard to dialectical disputation. In dialectic exercise, the respondent undertook to defend a thesis, so as to avoid inconsistency between one answer and another, against any questions which might be put by the opponent. Both the form of the questions, and the form of the answers, were determined beforehand. No question was admissible which tended to elicit information or a positive declaration from the respondent. A proposition was tendered to him, and he was required to announce whether he affirmed or denied it. The question might be put in either one of two ways: either by the affirmative alone, or by putting both the affirmative and the negative; either in the form, Is Rhetoric estimable? or in the form, Is Rhetoric estimable or not? To the first form the respondent answered Yes or No: to the second form, he replied by repeating either the affirmative or the negative, as he preferred. But it was not allowable to ask him, *What* is Rhetoric? so as to put him under the necessity of enunciating an explanation of his own.[b]

Under these canons of dialectic debate, each question was required to be really and truly one, so as to admit of a definite answer in one word. The questioner was either unfair or unskilful, if he wrapped up two questions really distinct in the same word, and thus compelled the respondent either to admit them both, or to deny them both, at once. Against this inconvenience Aristotle seeks to guard, by explaining what are the conditions under which one and the same word does in fact include more than one question. He had before brought to view the case of an equivocal term, which involves such duplication: if *himation* means both horse and man, it will often happen that

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[a] Aristot. De Interpr. p. 20, b. 13-22. [b] See the Scholia of Ammonius, p. 127, Br.

questions respecting *himation* cannot be truly answered either by Yes or No. He now brings to view a different case in which the like ambiguity is involved. To constitute one proposition, it is essential both that the subject should be one, and that the predicate should be one; either of them indeed may be called by two or three names, but these names must coalesce into one. Thus, *animal, bipes, mansuetum,* coalesce into *homo,* and may be employed either as one subject or as one predicate; but *homo, albus, ambulans,* do not coalesce into one; so that if we say, *Kallias est homo, albus, ambulans,* the proposition is not one but three.[a] Accordingly, the respondent cannot make one answer to a question thus complicated. We thus find Aristotle laying down principles—and probably no one had ever attempted to do so before him—for the correct management of that dialectical debate which he analyses so copiously in the Topica.

There are cases (he proceeds to state) in which two predicates may be truly affirmed, taken separately, respecting a given subject, but in which they cannot be truly affirmed, taken together.[b] Kallias is a *currier,* Kallias is *good*—both these propositions may be true; yet the proposition, Kallias is a *good currier,* may not be true. The two predicates are both of them accidental co-inhering in the same individual; but do not fuse themselves into one. So, too, we may truly say, Homer *is a poet;* but we cannot truly say, Homer *is.*[c] We see by this last remark,[d] how distinctly Aristotle assigned a double meaning to *est:* first, *per se,* as meaning existence; next, relatively, as performing the function of copula in predication. He tells us, in reply either to Plato or to some other contemporaries, that though we may truly say, *Non-Ens est opinabile,* we cannot truly say *Non-Ens est,* because the real meaning of the first of these propositions is, *Nons-Ens est opinabile non esse.*[e]

Aristotle now discusses the so-called MODAL Propositions—the Possible and the Necessary. What is the appropriate form of

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[a] Aristot. De Interpret. p. 20, b. 2, seq.; Ammonius, Schol. pp. 127-128, a. 21, Br. Compare De Sophist. Elench. p. 169, a. 6-15.

[b] Aristot. De Interpr. p. 21, a. 7, seq.

[c] Ibid. a. 27.

[d] Compare Schol. (ad Anal. Prior. I.) p. 146, a. 19-27; also Eudemi Fragment. cxiv. p. 167, ed. Spengel.

Eudemus considered ἔστιν as one term in the proposition. Alexander dissented from this, and regarded it as being only a copula between the terms, συνθέσεως μηνυτικὸν μόριον τῶν ἐν τῇ προτάσει ὅρων.

[e] Aristot. De Interpr. p. 21, a. 32; compare Rhetorica, ii. p. 1402, a. 5. The remark of Aristotle seems to bear upon the doctrine laid down by Plato in the Sophistes, p. 258—the close of the long discussion which begins, p. 237, about τὸ μὴ ὄν, as Ammonius tells us in the Scholia, p. 112, b. 5, p. 129, b. 20, Br. Ammonius also alludes to the Republic; as if Plato had delivered the same doctrine in both; which is not the fact. See 'Plato and the Other Companions of Sokrates,' vol. II. ch. xxvii. pp. 447-458, seq.

Antiphasis in the case of such propositions, where *possible to be*, or *necessary to be*, is joined to the simple *is*. After a chapter of some length, he declares that the form of *Antiphasis* suitable for the Simple proposition will not suit for a Modal proposition; and that in the latter the sign of negation must be annexed to the modal adjective—*possible, not possible, &c.* His reasoning here is not merely involved, but substantially incorrect; for, in truth, both in one and in the other, the sign of contradictory negation ought to be annexed to the copula.[a] From the *Antiphasis* in Modals Aristotle proceeds to legitimate sequences admissible in such propositions, how far any one of them can be inferred from any other.[b] He sets out four tables, each containing four modal determinations interchangeable with each other.

1.	3.
1. Possible (physically) to be.	1. Not possible (physically) to be.
2. Possible (logically) to be.	2. Not possible (logically) to be.
3. Not impossible to be.	3. Impossible to be.
4. Not necessary to be.	4. Necessary not to be.

2.	4.
1. Possible (physically) not to be.	1. Not possible (physically) not to be.
2. Possible (logically) not to be.	2. Not possible (logically) not to be.
3. Not impossible not to be.	3. Impossible not to be.
4. Not necessary not to be.	4. Necessary to be.

Aristotle canvasses these tables at some length, and amends them partly by making the fourth case of the second table change place with the fourth of the first.[c] He then discusses whether we can correctly say that the *necessary to be* is also *possible to be*. If not, then we might say correctly that the *necessary to be* is *not possible to be*; for one side or other of a legitimate *Antiphasis* may always be truly affirmed. Yet this would be absurd: accordingly we must admit that the *necessary to be* is also *possible to be*. Here, however, we fall seemingly into a different absurdity; for the *possible to be* is also *possible not to be*; and how can we allow that what is *necessary to be* is at the same time *possible not to be?* To escape from such absurdities on both sides, we must distinguish two modes of the Possible: one, in

[a] Aristot. De Interpret. p. 21, a. 34-p. 22, a. 13. See the note of Waitz, ad Organ, I. p. 359, who points out the error of Aristotle, partly indicated by Ammonius in the Scholia.

The rule does not hold in propositions with the sign of universality attached to the subject; but it is at least the same for Modals and Non-modals.

[b] Aristot. De Interpr. p. 22, a. 14-b. 28.

[c] Aristot. De Interpr. p. 22, b. 22, λείπεται τοίνυν, &c.; Ammonius, Schol. p. 133, b. 5-27-36.

Aristotle also intimates (p. 23, a. 18) that it would be better to reverse the order of the propositions in the tables, and to place the Necessary before the Possible. M. Barthélemy St. Hilaire has inserted (in the note to his Translation, p. 197) tables with this reversed order.

which the affirmative and negative are alike possible; the other in which the affirmative alone is possible, because it is always and constantly realized. If a man is actually walking, we know that it is possible for him to walk; and even when he is not walking, we say the same, because we believe that he may walk if he chooses. He is not always walking; and in his case, as in all other intermittent realities, the affirmative and the negative are alike possible. But this is not true in the case of necessary, constant, and sempiternal realities. With them there is no alternative possibility, but only the possibility of their doing or continuing to do. The celestial bodies revolve, sempiternally and necessarily; it is therefore possible for them to revolve; but there is no alternative possibility; it is not possible for them not to revolve. Perpetual reality thus includes the unilateral, but not the bilateral, possibility.[a]

Having thus stated that *possible to be*, in this unilateral and equivocal sense but in no other, is a legitimate consequence of *necessary to be*, Aristotle proceeds to lay down a tripartite distinction which surprises us in this place. "It is plain from what has been said that that which *is* by Necessity, is in Act or Actuality; so that if things sempiternal are prior, Actuality is prior to Possibility. Some things, like the first (or celestial) substances, are Actualities without Possibility; others (the generated and perishable substances) which are prior in nature but posterior in generation, are Actualities along with Possibility; while a third class are Possibilities only, and never come into Actuality" (such as the largest number, or the least magnitude).[b]

Now the sentence just translated (enunciating a doctrine of Aristotle's First Philosophy rather than of Logic) appears decidedly to contradict what he had said three lines before, viz., that in one certain sense, the *necessary to be* included and implied the *possible to be;* that is, a possibility or potentiality unilateral only, not bilateral; for we are here told that the celestial substance is Actuality without Possibility (or Potentiality), so that the unilateral sense of this last term is disallowed. On the other hand, a third sense of the same term is recognized and distinguished; a sense neither bilateral nor unilateral, but the negation of both. This third sense is hardly intelligible, giving as it does an *impossible* Possible; it seems a self-contradictory description.[c] At best, it can only be understood as a limit in

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[a] Aristot. De Interpret. p. 22, b. 29-p. 23, a. 15.

[b] Ibid. p. 23, a. 21-26.

[c] M. Barthélemy St. Hilaire, in the note to his translation (p. 197) calls it justly—"le possible qui n'est jamais; et qui par cela même, porte en lui une sorte d' impossibilité." It contradicts both the

the mathematical sense; a terminus towards which potentiality may come constantly nearer and nearer, but which it can never reach. The first, or bilateral potentiality, is the only sense at once consistent, legitimate, and conformable to ordinary speech. Aristotle himself admits that the second and third are equivocal meanings,[a] departing from the first as the legitimate meaning; but if equivocal departure to so great an extent were allowed, the term, put to such multifarious service, becomes unfit for accurate philosophical reasoning. And we find this illustrated by the contradiction into which Aristotle himself falls in the course of a few lines. The sentence of First Philosophy (which I translated in the last page) is a correction of the logical statement immediately preceding it, in so far as it suppresses the *necessary* Possible, or the unilateral potentiality. But on the other hand the same sentence introduces a new confusion by its third variety—the *impossible* Potential, departing from all clear and consistent meaning of potentiality, and coinciding only with the explanation of *Non-Ens*, as given by Aristotle elsewhere.[b]

The contrast of Actual and Potential stands so prominently forward in Aristotle's First Philosophy, and is, when correctly understood, so valuable an element in First Philosophy generally, that we cannot be too careful against those misapplications of it into which he himself sometimes falls. The sense of Potentiality, as including the alternative of either affirmative or negative—*may be or may not be*—is quite essential in comprehending the ontological theories of Aristotle; and when he professes to drop the *may not be* and leave only the *may be*, this is not merely an equivocal sense of the word, but an entire renunciation of its genuine sense. In common parlance, indeed,

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two explanations of δυνατὸν which Aristotle had given a few lines before. 1. δυνατὸν ὅτι ἐνεργεῖ. 2. δυνατὸν ὅτι ἐνεργήσειεν ἄν (p. 23, a. 10).

[a] Aristot. De Interpr. p. 23, a. 5. τοῦτο μὲν τούτου χάριν εἴρηται, ὅτι οὐ πᾶσα δύναμις τῶν ἀντικειμένων, οὐδ' ὅσαι λέγονται κατὰ τὸ αὐτὸ εἶδος. ἔνιαι δὲ δυνάμεις ὁμώνυμοί εἰσιν· τὸ γὰρ δυνατὸν οὐχ ἁπλῶς λέγεται, ἀλλὰ τὸ μὲν ὅτι ἀληθὲς ὡς ἐνεργείᾳ ὄν, &c.

If we read the thirteenth chapter of Analytica Priora I. (p. 32, a. 18-29) we shall see that τὸ ἐνδεχόμενον is declared to be οὐκ ἀναγκαῖον, and that in the definition of τὸ ἐνδεχόμενον, the words οὗ μὴ ὄντος ἀναγκαίου are expressly inserted. When τὸ ἀναγκαῖον is said ἐνδέχεσθαι, this is said only in an *equivocal* sense of ἐνδέχεσθαι—τὸ γὰρ ἀναγκαῖον ὁμωνύμως ἐνδέχεσθαι λέγομεν.

On the meaning of τὸ ἐνδεχόμενον, translated above, in the table, "possible (logically) to be," and its relation to τὸ δυνατόν, see Waitz, ad Organ. I. pp. 375-8. Compare Prantl. Gesch. der Logik, I. pp. 166-8.

[b] Aristot. De Interpr. p. 21, a. 32: τὸ δὲ μὴ ὄν, ὅτι δοξαστόν, οὐκ ἀληθὲς εἰπεῖν ὄν τι· δόξα γὰρ αὐτοῦ οὐκ ἔστιν ὅτι ἔστιν, ἀλλ' ὅτι οὐκ ἔστιν. Τὸ μὴ ὂν is the true description of that which Aristotle improperly calls δύναμις ἣ οὐδέποτε ἐνέργειά ἐστιν.

The triple enumeration given by Aristotle (1. Actuality without Potentiality. 2. Actuality with Potentiality. 3. Potentiality without Actuality) presents a neat symmetry which stands in the place of philosophical exactness.

we speak elliptically, and say, *It may be*, when we really mean, *It may or may not be*. But the last or negative half, though not expressly announced, is always included in the thought and belief of the speaker and understood by the hearer.[a]

Many logicians, and Sir William Hamilton very emphatically, have considered the Modality of propositions as improper to be included in the province of Logic, and have treated the proceeding of Aristotle in thus including it, as one among several cases in which he had transcended the legitimate boundaries of the science.[b] This criticism, to which I cannot subscribe, is founded upon one peculiar view of the proper definition and limits of Logic. Sir W. Hamilton lays down the limitation peremptorily, and he is warranted in doing this for himself; but it is a question about which there has been great diversity of view among expositors, and he has no right to blame others who enlarge it. My purpose in the present volume is to explain how the subject presented itself to Aristotle. He was the first author that ever attempted to present Logic in a scientific aspect; and it is hardly fair to try him by restrictions emanating from critics much later. Yet, if he is to be tried upon this point, I think the latitude in which he indulges preferable to the restricted doctrine of Sir W. Hamilton.

In the treatise now before us (De Interpretatione) Aristotle announces his intention to explain the Proposition or Enunciative Speech, the conjunction of a noun and a verb; as distinguished, first, from its two constituents (noun and verb) separately taken; next, from other modes of speech, also combining the two (precative, interrogative, &c.). All speech (he says), the noun or verb separately, as well as the proposition conjointly, is, in the first instance, a sign of certain mental states common to the speaker with his hearers; and, in the second instance, a sign of certain things or facts, resembling (or correlating with) these mental states.[c] The noun, pronounced separately, and the verb, pronounced separately, are each signs of a certain thought in the speaker's mind, without

[a] See Trendelenburg ad Aristot. De Animâ, pp. 303-307.

[b] See pp. 143-5 of the article, "Logic," in Sir William Hamilton's Discussions on Philosophy—a very learned and instructive article, even for those who differ from most of its conclusions. Compare the opposite view, as advocated by M. Barthélemy St. Hilaire, Logique d'Aristote, Préface, pp. lxii-lxviii.

[c] Aristot. De Interpr. p. 16, a. 3-8: ἔστι μὲν οὖν τὰ ἐν τῇ φωνῇ τῶν ἐν τῇ ψυχῇ παθημάτων σύμβολα—ὧν μέντοι ταῦτα σημεῖα πρώτως, ταὐτὰ πᾶσι παθήματα τῆς ψυχῆς, καὶ ὧν ταῦτα ὁμοιώματα, πράγματα ἤδη ταὐτά. Ibid. a. 13: τὰ μὲν οὖν ὀνόματα αὐτὰ καὶ τὰ ῥήματα ἔοικε τῷ ἄνευ συνθέσεως καὶ διαιρέσεως νοήματι—οὔτε γὰρ ψεῦδος οὔτ' ἀληθές πω. Ib. p. 17, a. 2: λόγος ἀποφαντικὸς, ἐν ᾧ τὸ ἀληθεύειν ἢ ψεύδεσθαι ὑπάρχει. Compare p. 20, a. 34.

either truth or falsehood; the Proposition, or conjunction of the two, goes farther and declares truth or falsehood. The words pronounced (he says) follow the thoughts in the mind, expressing an opinion (*i.e.* belief or disbelief) entertained in the mind; the verbal affirmation or negation gives utterance to a mental affirmation or negation—a feeling of belief or disbelief—that something *is*, or that something *is not.*[a] Thus, Aristotle intends to give a theory of the Proposition, leaving other modes of speech to Rhetoric or Poetry:[b] the Proposition he considers under two distinct aspects. In its first or *subjective* aspect, it declares the state of the speaker's mind, as to belief or disbelief. In its second or *objective* aspect, it declares a truth or falsehood correlating with such belief or disbelief, for the information of the hearer. Now the Mode belonging to a proposition of this sort, in virtue of its *form*, is to be *true* or *false*. But there are also other propositions—other varieties of speech enunciative—which differ from the Simple or Assertory Proposition having the form *is* or *is not*, and which have distinct modes belonging to them, besides that of being true or false. Thus we have the Necessary Proposition, declaring that a thing *is* so *by necessity*, that it *must be* so, or *cannot but be* so; again, the Problematical Proposition, enunciating that a thing *may or may not be* so. These two modes attach to the *form* of the proposition, and are quite distinct from those which attach to its *matter* as simply affirmed or denied; as when, instead of saying, John is sick, we say, John is sick *of a fever*, John is *dangerously* sick, with a merely material modification. Such adverbs, modifying the *matter* affirmed or denied, are numerous, and may be diversified almost without limit. But they are not to be placed in the same category with the two just mentioned, which modify the *form* of the proposition, and correspond to a state of mind distinct from simple belief or disbelief, expressed by a simple affirmation or negation.[c] In the case of each of the two, Aristotle has laid

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[a] Aristot. De Interpret. p. 23, a. 32: *τὰ μὲν ἐν τῇ φωνῇ ἀκολουθεῖ τοῖς ἐν τῇ διανοίᾳ, ἐκεῖ δὲ ἐναντία δόξα ἡ τοῦ ἐναντίου,* &c. Ib. p. 24, b. 1: *ὥστε εἴπερ ἐπὶ δόξης οὕτως ἔχει, εἰσὶ δὲ αἱ ἐν τῇ φωνῇ καταφάσεις καὶ ἀποφάσεις σύμβολα τῶν ἐν τῇ ψυχῇ, δῆλον ὅτι καὶ καταφάσει ἐναντία μὲν ἀπόφασις ἡ περὶ τοῦ αὐτοῦ καθόλου,* &c. Ib. p. 17, a. 22: *ἔστι δὲ ἡ ἁπλῆ ἀπόφανσις φωνὴ σημαντικὴ περὶ τοῦ ὑπάρχειν τι ἢ μὴ ὑπάρχειν,* &c.

[b] Ibid. p. 17, a. 5. *οἱ μὲν οὖν ἄλλοι (λόγοι) ἀφείσθωσαν· ῥητορικῆς γὰρ ἢ ποιητικῆς οἰκειοτέρα ἡ σκέψις· ὁ δὲ ἀποφαντικὸς τῆς νῦν θεωρίας.*

[c] Ammonius (in the Scholia on De Interpret. p. 130, a. 16, seq., Brand.) ranks all modal propositions under the same category, and considers the number of them to be, not indeed infinite, but very great. He gives as examples: "The moon changes *fast*; Plato loves Dion *vehemently*." Sir W. Hamilton adopts the same view as Ammonius: "Modes may be conceived without end—all must be admitted, if any are; the line of distinction attempted to be drawn is futile." (Discussions on Phil. ut sup. p. 145.) On

down rules (correct or incorrect) for constructing the legitimate *Antiphasis*, and for determining other propositions equipollent to, or following upon, the propositions given; rules distinct from those applying to the simple affirmation. When we say of anything, *It may be or may not be*, we enunciate here only one proposition, not two; we declare a state of mind which is neither belief nor disbelief, as in the case of the Simple Proposition, but something wavering between the two; yet which is nevertheless frequent, familiar to every one, and useful to be made known by a special form of proposition adapted to it—the Problematical. On the other hand, when we say, *It is by necessity—must be—cannot but be*—we declare our belief, and something more besides; we declare that the supposition of the opposite of what we believe, would involve a contradiction—would contradict some definition or axiom to which we have already sworn adherence. This again is a state of mind known, distinguishable, and the same in all, subjectively; though as to

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the other hand, we learn from Ammonius that most of the Aristotelian interpreters preceding him reckoned the simple proposition τὸ ὑπάρχειν as a modal; and Aristotle himself seems so to mention it (Analytica Priora, I. ii. p. 25, a. 1); besides that he enumerates *true* and *false*, which undoubtedly attach to τὸ ὑπάρχειν, as examples of modes (De Interpret. c. 12, p. 22, a. 13). Ammonius himself protests against this doctrine of the former interpreters.

Mr. John Stuart Mill (System of Logic, Bk. I. ch. iv. s. 2) says:—"A remark of a similar nature may be applied to most of those distinctions among propositions which are said to have reference to their *modality;* as difference of tense or time; the sun *did* rise, *is* rising, *will* rise. . . . The circumstance of time is properly considered as attaching to the copula, which is the sign of predication, and not to the predicate. If the same cannot be said of such modifications as these, Cæsar is *perhaps* dead; it is *possible* that Cæsar is dead; it is only because these fall together under another head; being properly assertions not of anything relating to the fact itself, but of the state of our own mind in regard to it; namely, our absence of disbelief of it. Thus, *Cæsar may be dead*, means, *I am not sure that Cæsar is alive*."

I do not know whether Mr. Mill means that the function of the copula is different in these problematical propositions, from what it is in the categorical propositions: I think there is no difference. But his remark that the problematical proposition is an assertion of the state of our minds in regard to the fact, appears to me perfectly just. Only, we ought to add, that this is equally true about the categorical proposition. It is equally true about all the three following propositions:—1. The three angles of a triangle may or may not be equal to two right angles. 2. The three angles of a triangle are equal to two right angles. 3. The three angles of a triangle are necessarily equal to two right angles. In each of these three propositions, an assertion of the state of our minds is involved, and a different state of mind in each. This is the subjective aspect of the proposition; it belongs to the form rather than to the matter, and may be considered as a mode. The commentators preceding Ammonius did so consider it, and said that the categorical proposition had its mode as well as the others. Ammonius differed from them, treating the categorical as having no mode—as the standard unit or point of departure.

The propositions now known as Hypothetical and Disjunctive, which may also be regarded as in a certain sense Modals are not expressly considered by Aristotle. In the Anal. Prior. I. xliv. p. 50 a. 16-38, he adverts to hypothetical syllogisms, and intimates his intention of discussing them more at length: but this intention has not been executed, in the works that we possess.

the objective correlate—what constitutes the Necessary, several different opinions have been entertained.

In every complete theory of enunciative speech, these modal propositions deserve to be separately explained, both in their substantive meaning and in their relation to other propositions. Their characteristic property as Modals belongs to *form* rather than to *matter;* and Aristotle ought not to be considered as unphilosophical for introducing them into the Organon, even if we adopt the restricted view of Logic taken by Sir W. Hamilton, that it takes no cognizance of the matter of propositions, but only of their form. But though I dissent from Hamilton's criticisms on this point, I do not concur with the opposing critics who think that Aristotle has handled the Modal Propositions in a satisfactory manner. On the contrary, I think that the equivocal sense which he assigns to the Potential or Possible, and his inconsistency in sometimes admitting, sometimes denying, a Potential that is always actual, and a Potential that is never actual—are serious impediments to any consistent Logic. The Problematical Proposition does not admit of being cut in half; and if we are to recognize a *necessary* Possible, or an *impossible* Possible, we ought to find different phrases by which to designate them.

We must observe that the distinction of Problematical and Necessary Propositions corresponds, in the mind of Aristotle, to that capital and characteristic doctrine of his Ontology and Physics, already touched on in this chapter. He thought, as we have seen, that in the vast circumferential region of the Kosmos, from the outer sidereal sphere down to the lunar sphere, celestial substance was a necessary existence and energy, sempiternal and uniform in its rotations and influence; and that through its beneficent influence, pervading the concavity between the lunar sphere and the terrestrial centre (which included the four elements with their compounds) there prevailed a regularizing tendency called Nature: modified, however, and partly counteracted by independent and irregular forces called Spontaneity and Chance, essentially unknowable and unpredictable. The irregular sequences thus named by Aristotle were the objective correlate of the Problematical Proposition in Logic. In these sublunary sequences, as to future time, *may or may not* was all that could be attained, even by the highest knowledge; certainty, either of affirmation or negation, was out of the question. On the other hand, the necessary and uniform energies of the celestial substance, formed the objective correlate of the Necessary Proposition in Logic; this substance was not

merely an existence, but an existence necessary and unchangeable. I shall say more on this when I come to treat of Aristotle as a kosmical and physical philosopher; at present it is enough to remark that he considers the Problematical Proposition in Logic to be not purely subjective, as an expression of the speaker's ignorance, but something more, namely, to correlate with an objective essentially unknowable to all.

The last paragraph of the treatise De Interpretatione discusses the question of Contraries and Contradictories, and makes out that the greatest breadth of opposition is that between a proposition and its contradictory (Kallias is just—Kallias is not just), not that between a proposition and what is called its contrary (Kallias is just—Kallias is unjust); therefore, that according to the definition of contrary, the true contrary of a proposition is its contradictory.[a] This paragraph is not connected with that which precedes; moreover, both the reasoning and the conclusion differ from what we read as well in this treatise as in other portions of Aristotle. Accordingly, Ammonius in the Scholia, while informing us that Porphyry had declined to include it in his commentary, intimates also his own belief that it is not genuine, but the work of another hand. At best (Ammonius thinks), if we must consider it as the work of Aristotle, it has been composed by him only as a dialectical exercise, to debate an unsettled question.[b] I think the latter hypothesis not improbable. The paragraph has certainly reference to discussions which we do not know, and it may have been composed when Aristotle had not fully made up his mind on the distinction between Contrary and Contradictory. Considering the difficult problems that he undertook to solve, we may be sure that he must have written down several trains of thought merely preliminary and tentative. Moreover, we know that he had composed a distinct treatise 'De Oppositis,'[c] which is unfortunately lost, but in which he must have included this very topic—the distinction between Contrary and Contradictory.

Whatever may have been the real origin and purpose of this last paragraph, I think it unsuitable as a portion of the treatise De Interpretatione. It nullifies, or at least overclouds, one of the best parts of that treatise, the clear determination of *Antiphasis* and its consequences.

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[a] Aristot. De Interpr. p. 23, a 27, seq.

[b] Scholia ad Arist. pp. 135-139, Br. *γυμνάσαι μόνον βουληθέντος τοὺς ἐντυγχάνοντας πρὸς τὴν ἐπίκρισιν τῶν πιθανῶς μὲν οὐ μέντοι ἀληθῶς λεγομένων λόγων*, &c. (p. 135, b. 15; also p. 136, a. 42).

[c] Scholia ad Categorias, p. 83, a. 17-19, b. 10, p. 84, a. 29, p. 86, b. 42, p. 88, a. 30. It seems much referred to by Simplikius, who tells us that the Stoics adopted most of its principles (p. 83, a. 21, b. 7).

If, now, we compare the theory of the Proposition as given by Aristotle in this treatise, with that which we read in the Sophistes of Plato, we shall find Plato already conceiving the proposition as composed indispensably of noun and verb, and as being either affirmative or negative, for both of which he indicates the technical terms.[a] He has no technical term for either subject or predicate; but he conceives the proposition as belonging to its subject:[b] we may be mistaken in the predicates, but we are not mistaken in the subject. Aristotle enlarges and improves upon this theory. He not only has a technical term for affirmation and negation, and for negative noun and verb, but also for subject and predicate; again, for the mode of signification belonging to noun and verb, each separately, as distinguished from the mode of signification belonging to them conjointly, when brought together in a proposition. He follows Plato in insisting upon the characteristic feature of the proposition—aptitude for being true or false; but he gives an ampler definition of it, and he introduces the novel and important distribution of propositions according to the quantity of the subject. Until this last distribution had been made, it was impossible to appreciate the true value and bearing of each *Antiphasis*, and the correct language for expressing it, so as to say neither more nor less. We see, by reading the Sophistes, that Plato did not conceive the *Antiphasis* correctly, as distinguished from Contrariety on the one hand, and from mere Difference on the other. He saw that the negative of any proposition does not affirm the contrary of its affirmative; but he knew no other alternative except to say, that it affirms only something different from the affirmative. His theory in the Sophistes recognizes nothing but affirmative propositions, with the predicate of contrariety on one hand, or of difference on the other;[c] he ignores, or jumps over, the intermediate station of propositions affirming nothing at all, but simply denying a pre-understood affirmative. There were other contemporaries, Antisthenes among them, who declared con-

[a] Plato, Sophistes, pp. 261-262. *φάσιν καὶ ἀπόφασιν*.—ib. p. 263 E. In the so-called Platonic 'Definitions,' we read *ἐν καταφάσει καὶ ἀποφάσει* (p. 413 C.); but these are probably after Aristotle's time. In another of these Definitions (413 D.) we read *ἀπόφασις*, where the word ought to be *ἀπόφανσις*.

[b] Plato, Sophist. p. 263 A-C.

[c] Ibid. p. 257, B: *Οὐκ ἄρ', ἐναντίον ὅταν ἀπόφασις λέγηται σημαίνειν, συγχωρησόμεθα, τοσοῦτον δὲ μόνον, ὅτι τῶν ἄλλων τι μηνύει τὸ μὴ καὶ τὸ οὒ προτιθέμενα τῶν ἐπιόντων ὀνομάτων, μᾶλλον δὲ τῶν πραγμάτων, περὶ ἅττ' ἂν κέηται τὰ ἐπιφθεγγόμενα ὕστερον τῆς ἀποφάσεως ὀνόματα.*

The term *ἀντίφασις*, and its derivative *ἀντιφατικῶς*, are not recognized in the Platonic Lexicon. Compare the same dialogue, Sophistes, p. 263; also Euthydêmus, p. 298, A. Plato does not seem to take account of negative propositions as such. See 'Plato and the Other Companions of Sokrates,' vol. II. ch. xxvii. pp. 446-455.

tradiction to be an impossibility;[a] an opinion coinciding at bottom with what I have just cited from Plato himself. We see, in the Theætêtus, the Euthydêmus, the Sophistes, and elsewhere, how great was the difficulty felt by philosophers of that age to find a proper *locus standi* for false propositions, so as to prove them theoretically possible, to assign a legitimate function for the negative, and to escape from the interdict of Parmenides, who eliminated *Non-Ens* as unmeaning and incogitable. Even after the death of Aristotle, the acute disputation of Stilpon suggested many problems, but yielded few solutions; and Menedêmus went so far as to disallow negative propositions altogether.[b]

Such being the conditions under which philosophers debated in the age of Aristotle, we can appreciate the full value of a positive theory of propositions such as that which we read in his treatise De Interpretatione. It is, so far as we know, the first positive theory thereof that was ever set out; the first attempt to classify propositions in such a manner that a legitimate *Antiphasis* could be assigned to each; the first declaration that to each affirmative proposition there belonged one appropriate negative, and to each negative proposition one appropriate counter-affirmative, and one only; the earliest effort to construct a theory for this purpose, such as to hold ground against all the puzzling questions of acute disputants.[c] The clear determination of the *Antiphasis* in each case—the distinction of Contradictory antithesis from Contrary antithesis between propositions —this was an important logical doctrine never advanced before Aristotle; and the importance of it becomes manifest when we read the arguments of Plato and Antisthenes, the former overleaping and ignoring the contradictory opposition, the latter maintaining that it was a process theoretically indefensible. But in order that these two modes of antithesis should be clearly contrasted, each with its proper characteristic, it was requisite that the distinction of quantity between different propositions should also be brought to view, and considered in conjunction with the distinction of quality. Until this was done, the Maxim

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[a] Aristot. Topica, I. xi. p. 104, b. 20; Metaphys. Δ. p. 1024, b. 32; Analytic. Poster. I. xxv. p. 86, b. 34.

[b] Diogen. Laert. ii. 134-135. See the long discussion in the Platonic Theætêtus (pp. 187-196), in which Sokrates in vain endeavours to produce some theory whereby ψευδὴς δόξα may be rendered possible. Hobbes, also, in his Computation or Logic (De Corp. c. iii. § 6), followed by Destutt Tracy, disallows the negative proposition *per se*, and treats it as a clumsy disguise of the affirmative ἐκ μεταθέσεως, to use the phrase of Theophrastus. Mr. John Stuart Mill has justly criticized this part of Hobbes's theory (System of Logic, Book I. ch. iv. § 2).

[c] Aristot. De Interpr. p. 17, a. 36: πρὸς τὰς σοφιστικὰς ἐνοχλήσεις.

of Contradiction, denied by some, could not be shown in its true force or with its proper limits. Now, we find it done,[a] for the first time, in the treatise before us. Here the Contradictory antithesis (opposition both in quantity and quality) in which one proposition must be true and the other false, is contrasted with the Contrary (propositions opposite in quality, but both of them universal). Aristotle's terminology is not in all respects fully developed; in regard, especially, to the quantity of propositions it is less advanced than in his own later treatises; but from the theory of the De Interpretatione all the distinctions current among later logicians, take their rise.

The distinction of Contradictory and Contrary is fundamental in ratiocinative Logic, and lies at the bottom of the syllogistic theory as delivered in the Analytica Priora. The precision with which Aristotle designates the Universal proposition with its exact contradictory antithesis, is remarkable in his day. Some, however, of his observations respecting the place and functions of the negative particle (οὐ), must be understood with reference to the variable order of words in a Greek or Latin sentence; for instance, the distinction between *Kallias non est justus* and *Kallias est non justus* does not suggest itself to one speaking English or French.[b] Moreover, the Aristotelian theory of the

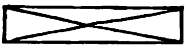
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[a] We see, from the argument in the Metaphysica of Aristotle, that there were persons in his day who denied or refused to admit the Maxim of Contradiction; and who held that contradictory propositions might both be true or both false (Aristot. Metaph. Γ. p. 1006, a. 1; p. 1009, a. 24). He employs several pages in confuting them.

See the Antinomies in the Platonic Parmenides (pp. 154-155), some of which destroy or set aside the Maxim of Contradiction ('Plato and the Other Companions of Sokrates,' vol. II. ch. xxv. p. 306).

[b] The diagram or parallelogram of logical antithesis, which is said to have begun with Apuleius, and to have been transmitted through Boethius and the Schoolmen to modern times (Ueberweg, System der Logik, sect. 72, p. 174) is as follows:—

A. Omnis homo est justus. E. Nullus homo est justus.



I. Aliquis homo est justus. O. Aliquis homo non est justus.

But the parallelogram set out by Aristotle in the treatise De Interpretatione, or at least in the Analytica Priora, is different, and intended for a different purpose. He puts it thus:—

1. Omnis homo est justus . . . . 2. Non omnis homo est justus.
4. Non omnis homo est non justus . . . . . 3. Omnis homo est non justus.

Here Proposition (1) is an affirmative, of which (2) is the direct and appropriate negative: also Proposition (3) is an affirmative (Aristotle so considers it), of which (4) is the direct and appropriate negative. The great aim of Aristotle is to mark out clearly what is the appropriate negative or 'Απόφασις to each Κατάφασις (*μία ἀπόφασις μιᾶς καταφάσεως*, p. 17, b. 38), making up together the pair which he calls 'Αντίφασις, standing in Contradictory Opposition; and to distinguish this appropriate negative from another proposition which comprises the particle of negation, but which is really a new affirmative.

The true negatives of *homo est justus—Omnis homo est justus* are, *Homo non est justus—Non omnis homo est justus*. If you say, *Homo est non justus—Omnis homo est non justus*, these are not negative propositions, but new affirmatives (*ἐκ μεταθέσεως* in the language of Theophrastus).

Proposition is encumbered with various unnecessary subtleties; and the introduction of the Modals (though they belong, in my opinion, legitimately to a complete logical theory) renders the doctrine so intricate and complicated, that a judicious teacher will prefer, in explaining the subject, to leave them for second or ulterior study, when the simpler relations between categorical propositions have been made evident and familiar. The force of this remark will be felt more when we go through the Analytica Priora. The two principal relations to be considered in the theory of Propositions—Opposition and Equipollence—would have come out far more clearly in the treatise De Interpretatione, if the discussion of the Modals had been reserved for a separate chapter.

CHAPTER V.

ANALYTICA PRIORA I.

REVIEWING the treatise De Interpretatione, we have followed Aristotle in his first attempt to define what a Proposition is, to point out its constituent elements, and to specify some of its leading varieties. The characteristic feature of the Proposition he stated to be—That it declares, in the first instance, the mental state of the speaker as to belief or disbelief, and, in its ulterior or final bearing, a state of facts to which such belief or disbelief corresponds. It is thus significant of truth or falsehood; and this is its logical character (belonging to Analytic and Dialectic), as distinguished from its rhetorical character, with other aspects besides. Aristotle farther indicated the two principal discriminative attributes of propositions as logically regarded, passing under the names of quantity and quality. He took great pains, in regard to the quality, to explain what was the special negative proposition in true contradictory antithesis to each affirmative. He stated and enforced the important separation of contradictory propositions from contrary; and he even parted off (which the Greek and Latin languages admit, though the French and English will hardly do so) the true negative from the indeterminate affirmative. He touched also upon equipollent propositions, though he did not go far into them. Thus commenced with Aristotle the systematic study of propositions, classified according to their meaning and their various interdependences with each other as to truth and falsehood—their mutual consistency or incompatibility. Men who had long been talking good Greek fluently and familiarly, were taught to reflect upon the conjunctions of words that they habitually employed, and to pay heed to the conditions of correct speech in reference to its primary purpose of affirmation and denial, for the interchange of beliefs and disbeliefs, the communication of truth, and the rectification of falsehood. To many of Aristotle's contemporaries this first attempt to theorize upon the forms of locution familiar to every one would probably appear hardly less strange than the interrogative

dialectic of Sokrates, when he declared himself not to know what was meant by justice, virtue, piety, temperance, government, &c.; when he astonished his hearers by asking them to rescue him from this state of ignorance, and to communicate to him some portion of their supposed plenitude of knowledge.

Aristotle tells us expressly that the theory of the Syllogism, both demonstrative and dialectic, on which we are now about to enter, was his own work altogether and from the beginning; that no one had ever attempted it before; that he therefore found no basis to work upon, but was obliged to elaborate his own theory, from the very rudiments, by long and laborious application. In this point of view, he contrasts Logic pointedly with Rhetoric, on which there had been a series of writers and teachers, each profiting by the labours of his predecessors.[a] There is no reason to contest the claim to originality here advanced by Aristotle. He was the first who endeavoured, by careful study and multiplied comparison of propositions, to elicit general truths respecting their ratiocinative interdependence, and to found thereupon precepts for regulating the conduct of demonstration and dialectic.[b]

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[a] See the remarkable passage at the close of the Sophistici Elenchi, p. 183, b. 34-p. 184, b. 9: *ταύτης δὲ τῆς πραγματείας οὐ τὸ μὲν ἦν τὸ δὲ οὐκ ἦν προεξειργασμένον, ἀλλ' οὐδὲν παντελῶς ὑπῆρχε— καὶ περὶ μὲν τῶν ῥητορικῶν ὑπῆρχε πολλὰ καὶ παλαιὰ τὰ λεγόμενα, περὶ δὲ τοῦ συλλογίζεσθαι παντελῶς οὐδὲν εἴχομεν πρότερον ἄλλο λέγειν, ἀλλ' ἢ τριβῇ ζητοῦντες πολὺν χρόνον ἐπονοῦμεν.*

[b] Sir Wm. Hamilton, Lectures on Logic, Lect. v. pp. 87-91, vol. III.:— "The principles of Contradiction and Excluded Middle can both be traced back to Plato, by whom they were enounced and frequently applied; though it was not till long after, that either of them obtained a distinctive appellation. To take the principle of Contradiction first. This law Plato frequently employs, but the most remarkable passages are found in the Phædo (p. 103), in the Sophista (p. 252), and in the Republic (iv. 436, vii. 525). This law was however more distinctively and emphatically enounced by Aristotle. . . . . Following Aristotle, the Peripatetics established this law as the highest principle of knowledge. From the Greek Aristotelians it obtained the name by which it has subsequently been denominated, the *principle*, or *law*, or *axiom*, of *Contradiction* (*ἀξίωμα τῆς ἀντιφάσεως*). . . . . The law of Excluded Middle between two contradictories remounts, as I have said, also to Plato; though the Second Alcibiades, in which it is most clearly expressed (p. 139; also Sophista, p. 250), must be admitted to be spurious. . . . . This law, though universally recognized as a principle in the Greek Peripatetic school, and in the schools of the middle ages, only received the distinctive appellation by which it is now known at a comparatively modern date."

The passages of Plato, to which Sir W. Hamilton here refers, will not be found to bear out his assertion that Plato "enounced and frequently applied the principles of Contradiction and Excluded Middle." These two principles are both of them enunciated, denominated, and distinctly explained by Aristotle, but by no one before him, as far as our knowledge extends. The conception of the two maxims, in their generality, depends upon the clear distinction between Contradictory Opposition and Contrary Opposition; which is fully brought out by Aristotle, but not adverted to, or at least never broadly and generally set forth, by Plato. Indeed it is remarkable that the word Ἀντίφασις, the technical term for Contradiction, never occurs in Plato; at least it is not recognized in the *Lexicon Platonicum*. Aristotle puts it in the foreground of his logical exposition; for, without it, he could not have

He begins the Analytica Priora by setting forth his general purpose, and defining his principal terms and phrases. His manner is one of geometrical plainness and strictness. It may perhaps have been common to him with various contemporary geometers, whose works are now lost; but it presents an entire novelty in Grecian philosophy and literature. It departed not merely from the manner of the rhetoricians and the physical philosophers (as far as we know them, not excluding even Demokritus), but also from Sokrates and the Sokratic school. For though Sokrates and Plato were perpetually calling for definitions, and did much to make others feel the want of such, they neither of them evinced aptitude or readiness to supply the want. The new manner of Aristotle is adapted to an undertaking which he himself describes as original, in which he has no predecessors, and is compelled to dig his own foundations. It is essentially didactic and expository, and contrasts strikingly with the mixture of dramatic liveliness and dialectical subtlety which we find in Plato.

The terminology of Aristotle in the Analytica is to a certain extent different from that in the treatise De Interpretatione. The Enunciation (Ἀπόφανσις) appears under the new name of Πρότασις, *Proposition* (in the literal sense) or *Premiss;* while, instead of Noun and Verb, we have the word *Term* (Ὅρος), applied alike both to Subject and to Predicate.[a] We pass now from the region of *declared* truth, into that of *inferential* or *reasoned* truth. We find the proposition looked at, not merely as communicating truth in itself, but as generating and helping to guarantee certain ulterior propositions, which communicate something additional or different. The primary purpose of the Analytica is announced to be, to treat of Demonstration and

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explained what he meant by Contradictory Opposition. See Categoriæ, pp. 13-14, and elsewhere in the treatise De Interpretatione and in the Metaphysica. Respecting the idea of the Negative as put forth by Plato in the Sophistes (not coinciding either with Contradictory Opposition or with Contrary Opposition), see 'Plato and the Other Companions of Sokrates,' vol. II. ch. xxvii. pp. 449-459. I have remarked in that chapter, and the reader ought to recollect, that the philosophical views set out by Plato in the Sophistes differ on many points from what we read in other Platonic dialogues.

[a] Aristot. Analyt. Prior. I. i. p. 24, b. 16: *ὅρον δὲ καλῶ εἰς ὃν διαλύεται ἡ πρότασις, οἷον τό τε κατηγορούμενον καὶ τὸ καθ' οὗ κατηγορεῖται*, &c.

Ὅρος—*Terminus*—seems to have been a technical word first employed by Aristotle himself to designate subject and predicate as the *extremes* of a proposition, which latter he conceives as the *interval* between the *termini*—διάστημα. (Analyt. Prior. I. xv. p. 35, a 12. *στερητικῶν διαστημάτων*, &c. See Alexander, Schol. pp. 145-146.)

In the Topica Aristotle employs *ὅρος* in a very different sense—*λόγος ὁ τὸ τί ἦν εἶναι σημαίνων* (Topic. I. v. p. 101, b. 39) — hardly distinguished from *ὁρισμός*. The Scholia take little notice of this remarkable variation of meaning, as between two treatises of the Organon so intimately connected (pp. 256-257, Br.).

demonstrative Science; but the secondary purpose, running parallel with it and serving as illustrative counterpart, is, to treat also of Dialectic; both of them[a] being applications of the inferential or ratiocinative process, the theory of which Aristotle intends to unfold.

The three treatises—1, Analytica Priora, 2, Analytica Posteriora, 3, Topica with Sophistici Elenchi—thus belong all to one general scheme; to the theory of the Syllogism, with its distinct applications, first, to demonstrative or didactic science, and, next, to dialectical debate. The scheme is plainly announced at the commencement of the Analytica Priora; which treatise discusses the Syllogism generally, while the Analytica Posteriora deals with Demonstration, and the Topica with Dialectic. The first chapter of the Analytica Priora and the last chapter of the Sophistici Elenchi (closing the Topica), form a preface and a conclusion to the whole. The exposition of the Syllogism, Aristotle distinctly announces, precedes that of Demonstration (and for the same reason also precedes that of Dialectic), because it is more general: every demonstration is a sort of syllogism, but every syllogism is not a demonstration.[b]

As a foundation for the syllogistic theory, propositions are classified according to their quantity (more formally than in the treatise De Interpretatione) into Universal, Particular, and Indefinite or Indeterminate;[c] Aristotle does not recognize the Singular Proposition as a distinct variety. In regard to the Universal Proposition, he introduces a different phraseology according as it is looked at from the side of the Subject, or from that of the Predicate. The Subject is, or is not, in the whole Predicate; the Predicate is affirmed or denied respecting all or every one of the Subject.[d] The minor term of the Syllogism (in the first mode of the first figure) is declared to be in the whole middle term; the major is declared to belong to, or to be predicable of, all and every the middle term. Aristotle says that the two are the same; we ought rather to say that each is the concomitant and correlate of the other, though his phraseology is such as to obscure the correlation.

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[a] Analyt. Prior. I. i. p. 24, a. 25.

[b] Ibid. I. iv. p. 25, b. 30.

[c] Ibid. I. i. p. 24, a. 17. The Particular (ἐν μέρει), here for the first time expressly distinguished by Aristotle, is thus defined:—ἐν μέρει δὲ τὸ τινὶ ἢ μὴ τινὶ ἢ μὴ παντὶ ὑπάρχειν.

[d] Ibid. b. 26: τὸ δ' ἐν ὅλῳ εἶναι ἕτερον ἑτέρῳ, καὶ τὸ κατὰ παντὸς κατηγορεῖσθαι θατέρου θάτερον, ταὐτόν ἐστι—ταὐτὸν, i.e. ἀντεστραμμένως, as Waitz remarks in note. Julius Pacius says:—"Idem re, sed ratione differunt ut ascensus et descensus; nam subjectum dicitur esse vel non esse in toto attributo, quia attributum dicitur de omni vel de nullo subjecto" (p. 128).

The definition given of a Syllogism is very clear and remarkable:—"It is a speech in which, some positions having been laid down, something different from these positions follows as a necessary consequence from their being laid down." In a *perfect* Syllogism nothing additional is required to make the necessity of the consequence obvious as well as complete. But there are also *imperfect* Syllogisms, in which such necessity, though equally complete, is not so obviously conveyed in the premisses, but requires some change to be effected in the position of the terms in order to render it conspicuous.[a]

The term Syllogism has acquired, through the influence of Aristotle, a meaning so definite and technical, that we do not easily conceive it in any other meaning. But in Plato and other contemporaries it bears a much wider sense, being equivalent to reasoning generally, to the process of comparison, abstraction, generalization.[b] It was Aristotle who consecrated the word, so as to mean exclusively the reasoning embodied in propositions of definite form and number. Having already analysed propositions separately taken, and discriminated them into various classes according to their constituent elements, he now proceeds to consider propositions in combination. Two propositions, if properly framed, will conduct to a third, different from themselves, but which will be necessarily true if they are true. Aristotle calls the three together a Syllogism.[c] He undertakes to shew how it must be framed in order that its conclusion shall be necessarily true, if the premisses are true. He furnishes schemes whereby the cast and arrangement of premisses, proper for attaining truth, may be recognized; together with the nature of the conclusion, warrantable under each arrangement.

In the Analytica Priora, we find ourselves involved, from and after the second chapter, in the distinction of Modal propositions, the necessary and the possible. The rules respecting the simple Assertory propositions are thus, even from the beginning, given in conjunction and contrast with those respecting the Modals. This is one among many causes of the difficulty and obscurity with which the treatise is beset. Theophrastus and Eudemus

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[a] Aristot. Anal. Prior. I. i. p. 24, b. 18-26. The same, with a little difference of wording, at the commencement of Topica, p. 100, a. 25. Compare also Analyt. Poster. I. x. p. 76, b. 38: *ὅσων ὄντων τῷ ἐκεῖνα εἶναι γίνεται τὸ συμπέρασμα*.

[b] See especially Plato, Theætêt. p. 186, B-D., where *ὁ συλλογισμὸς* and *τὰ ἀναλογίσματα* are equivalents.

[c] Julius Pacius (ad Analyt. Prior. I. i.) says that it is a mistake on the part of most logicians to treat the Syllogism as including three propositions (ut vulgus logicorum putat). He considers the premisses alone as constituting the Syllogism; the conclusion is not a part thereof, but something distinct and superadded. It appears to me that the *vulgus logicorum* are here in the right.

seem also to have followed their master by giving prominence to the Modals:[a] recent expositors avoid the difficulty, some by omitting them altogether, others by deferring them until the simple assertory propositions have been first made clear. I shall follow the example of these last; but it deserves to be kept in mind, as illustrating Aristotle's point of view, that he regards the Modals as principal varieties of the proposition, co-ordinate in logical position with the simple assertory.

Before entering on combinations of propositions, Aristotle begins by shewing what can be done with single propositions, in view to the investigation or proving of truth. A single proposition may be *converted;* that is, its subject and predicate may be made to change places. If a proposition be true, will it be true when thus converted, or (in other words) will its converse be true? If false, will its converse be false? If this be not always the case, what are the conditions and limits under which (assuming the proposition to be true) the process of conversion leads to assured truth, in each variety of propositions, affirmative or negative, universal or particular? As far as we know, Aristotle was the first person that ever put to himself this question; though the answer to it is indispensable to any theory of the process of proving or disproving. He answers it before he enters upon the Syllogism.

The rules which he lays down on the subject have passed into all logical treatises. They are now familiar; and readers are apt to fancy that there never was any novelty in them—that every one knows them without being told. Such fancy would be illusory. These rules are very far from being self-evident, any more than the maxims of Contradiction and of the Excluded Middle. Not one of the rules could have been laid down with its proper limits, until the discrimination of propositions, both as to quality (affirmative or negative), and as to quantity (universal or particular), had been put prominently forward and appreciated in all its bearings. The rule for trustworthy conversion is different for each variety of propositions. The Universal Negative may be converted simply; that is, the predicate may become subject, and the subject may become predicate—the proposition being true after conversion, if it was true before. But the Universal Affirmative cannot be thus converted simply. It admits of conversion only in the manner called by logicians *per accidens:* if the predicate change places with the subject, we cannot be sure that the proposition thus changed will be true,

[a] Eudemi Fragmenta, cii.-ciii. p. 145, ed. Spengel.

unless the new subject be lowered in quantity from universal to particular; *e.g.* the proposition, All men are animals, has for its legitimate converse not, *All* animals are men, but only, *Some* animals are men. The Particular Affirmative may be converted simply: if it be true that Some animals are men, it will also be true that Some men are animals. But, lastly, if the true proposition to be converted be a Particular Negative, it cannot be converted at all, so as to make sure that the converse will be true also.[a]

Here then are four separate rules laid down, one for each variety of propositions. The rules for the second and third variety are proved by the rule for the first (the Universal Negative), which is thus the basis of all. But how does Aristotle prove the rule for the Universal Negative itself? He proceeds as follows: "If A cannot be predicated of any one among the B's, neither can B be predicated of any one among the A's. For if it could be predicated of any one among them (say C), the proposition that A cannot be predicated of any B would not be true; since C is one among the B's."[b] Here we have a proof given which is no proof at all. If I disbelieved or doubted the proposition to be proved, I should equally disbelieve or doubt the proposition given to prove it. The proof only becomes valid, when you add a farther assumption which Aristotle has not distinctly enunciated, viz.: That if some A (*e.g.* C) is B, then some B must also be A; which would be contrary to the fundamental supposition. But this farther assumption cannot be granted here, because it would imply that we already know the rule respecting the convertibility of Particular Affirmatives, viz., that they admit of being converted simply. Now the rule about Particular Affirmatives is afterwards itself proved by help of the preceding demonstration respecting the Universal Negative. As the proof stands, therefore, Aristotle demonstrates each of these by means of the other; which is not admissible.[c]

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[a] Aristot. Analyt. Prior. I. ii. p. 25, a. 1-26.

[b] Ibid. p. 25, a. 15: *εἰ οὖν μηδενὶ τῶν* B *τὸ* A *ὑπάρχει, οὐδὲ τῶν* A *οὐδενὶ ὑπάρξει τὸ* B. *εἰ γάρ τινι, οἷον τῷ* Γ, *οὐκ ἀληθὲς ἔσται τὸ μηδενὶ τῶν* B *τὸ* A *ὑπάρχειν· τὸ γὰρ* Γ *τῶν* B *τί ἐστιν.*

Julius Pacius (p. 129) proves the Universal Negative to be convertible *simpliciter*, by a *Reductio ad Absurdum* cast into a syllogism in the First figure. But it is surely unphilosophical to employ the rules of Syllogism as a means of proving the legitimacy of Conversion, seeing that we are forced to assume conversion in our process for distinguishing valid from invalid syllogisms. Moreover the *Reductio ad Absurdum* assumes the two fundamental Maxims of Contradiction and Excluded Middle, though these are less obvious, and stand more in need of proof than the simple conversion of the Universal Negative, the point that they are brought to establish.

[c] Waitz, in his note (p. 374), endeavours, but I think without success, to show that Aristotle's proof is not open to the criticism here advanced. He admits that it is obscurely indicated, but the amplification of it given by himself

Even the friends and companions of Aristotle were not satisfied with his manner of establishing this fundamental rule as to the conversion of propositions. Eudêmus is said to have given a different proof; and Theophrastus assumed as self-evident, without any proof, that the Universal Negative might always be converted simply.[a] It appears to me that no other or better evidence of it can be offered, than the trial upon particular cases, that is to say, Induction.[b] Nothing is gained by dividing (as Aristotle does) the whole A into parts, one of which is C; nor can I agree with Theophrastus in thinking that every learner would assent to it at first hearing, especially at a time when no universal maxims respecting the logical value of propositions had ever been proclaimed. Still less would a Megaric dialectician, if he had never heard the maxim before, be satisfied to stand upon an alleged *à priori* necessity without asking for evidence. Now there is no other evidence except by exemplifying the formula, No A is B, in separate propositions already known to the learner as true or false, and by challenging him to produce any one case, in which, when it is true to say No A is B, it is not equally true to say, No B is A; the universality of the maxim being liable to be overthrown by any one contradictory instance.[c] If this proof does not convince him, no better can be

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still remains exposed to the same objection.

[a] See the Scholia of Alexander on this passage, p. 148, a. 30-45, Brandis; Eudemi Fragm. ci.-cv. pp. 145-149, ed. Spengel.

[b] We find Aristotle declaring in Topica, II. viii. p. 113, b. 15, that in converting a true Universal Affirmative proposition, the negative of the Subject of the convertend is always true of the negative of the Predicate of the convertend; *e.g.* If every man is an animal, every thing which is not an animal is not a man. This is to be assumed (he says) upon the evidence of Induction—uncontradicted iteration of particular cases, extended to all cases universally—*λαμβάνειν δ' ἐξ ἐπαγωγῆς, οἷον εἰ ὁ ἄνθρωπος ζῷον, τὸ μὴ ζῷον οὐκ ἄνθρωπος· ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων. . . . . ἐπὶ πάντων οὖν τὸ τοιοῦτον ἀξιωτέον.*

The rule for the simple conversion of the Universal Negative rests upon the same evidence of Induction, never contradicted.

[c] Dr. Wallis, in one of his acute controversial treatises against Hobbes, remarks upon this as the process pursued by Euclid in his demonstrations:—"You tell us next that an Induction, without enumeration of all the particulars, is not sufficient to infer a conclusion. Yes, Sir, if after the enumeration of some particulars, there comes a general clause, *and the like in other cases* (as here it doth), this may pass for a proofe till there be a possibility of giving some instance to the contrary, which here you will never be able to doe. And if such an Induction may not pass for proofe, there is never a proposition in Euclid demonstrated. For all along he takes no other course, or at least grounds his Demonstrations on Propositions no otherwise demonstrated. As, for instance, he proposeth it in general (i. c. 1.)—*To make an equilateral triangle on a line given.* And then he shows you how to do it upon the line A B, which he there shows you, and leaves you to supply: *And the same, by the like means, may be done upon any other strait line;* and then infers his general conclusion. Yet I have not heard any man object that the Induction was not sufficient, because he did not actually performe it in all lines possible."—(Wallis, Due Correction to Mr. Hobbes, Oxon. 1656, sect. v. p. 42.) This is induction *by parity of reasoning.*

So also Aristot. Analyt. Poster. I. iv.

produced. In a short time, doubtless, he will acquiesce in the general formula at first hearing, and he may even come to regard it as self-evident. It will recall to his memory an aggregate of separate cases each individually forgotten, summing up their united effect under the same aspect, and thus impressing upon him the general truth as if it were not only authoritative but self-authorized.

Aristotle passes next to Affirmatives, both Universal and Particular. First, if A can be predicated of all B, then B can be predicated of *some* A; for if B cannot be predicated of any A, then (by the rule for the Universal Negative) neither can A be predicated of any B. Again, if A can be predicated of some B, in this case also, and for the same reason, B can be predicated of some A.[a] Here the rule for the Universal Negative, supposed already established, is applied legitimately to prove the rules for Affirmatives. But in the first case, that of the Universal, it fails to prove *some* in the sense of *not-all* or *some-at-most*, which is required; whereas, the rules for both cases can be proved by Induction, like the formula about the Universal Negative. When we come to the Particular Negative, Aristotle lays down the position, that it does not admit of being necessarily converted in any way. He gives no proof of this, beyond one single exemplification: If some animal is not a man, you are not thereby warranted in asserting the converse, that some man is not an animal.[b] It is plain that such an exemplification is only an appeal to Induction: you produce one particular example, which is entering on the track of Induction; and one example alone is sufficient to establish the negative of an universal proposition.[c] The converse of a Particular Negative is not in all cases true, though it may be true in many cases.

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p. 73, b. 32: *τὸ καθόλου δὲ ὑπάρχει τότε, ὅταν ἐπὶ τοῦ τυχόντος καὶ πρώτου δεικνύηται.*

[a] Aristot. Analyt. Prior. I. ii. p. 25, a. 17-22.

[b] Ibid. p. 25, a. 22-26.

[c] Though some may fancy that the rule for converting the Universal Negative is intuitively known, yet every one must see that the rule for converting the Universal Affirmative is not thus self-evident, or derived from natural intuition. In fact, I believe that every learner at first hears it with great surprise. Some are apt to fancy that the Universal Affirmative (like the Particular Affirmative) may be converted *simply*. Indeed this error is not unfrequently committed in actual reasoning; all the more easily, because there is a class of cases (with subject and predicate co-extensive) where the converse of the Universal Affirmative *is* really true. Also, in the case of the Particular Negative, there are many true propositions in which the simple converse is true. A novice might incautiously generalize upon these instances, and conclude that both were convertible simply. Nor could you convince him of his error except by producing examples in which, when a true proposition of this kind is converted simply, the resulting converse is notoriously false. The appeal to various separate cases is the only basis on which we can rest for testing the correctness or incorrectness of all these maxims proclaimed as universal.

From one proposition taken singly, no new proposition can be inferred; for purposes of inference, two propositions at least are required.[a] This brings us to the rules of the Syllogism, where two propositions as premisses conduct us to a third which necessarily follows from them; and we are introduced to the well-known three Figures with their various Modes.[b] To form a valid Syllogism, there must be three terms and no more; the two, which appear as Subject and Predicate of the conclusion, are called the *minor* term (or minor extreme) and the *major* term (or major extreme) respectively; while the third or *middle* term must appear in each of the premisses, but not in the conclusion. These terms are called *extremes* and *middle*, from the position which they occupy in every perfect Syllogism—that is, in what Aristotle ranks as the First among the three figures. In *his* way of enunciating the Syllogism, this middle position formed a conspicuous feature; whereas the modern arrangement disguises it, though the denomination *middle* term is still retained. Aristotle usually employs letters of the alphabet, which he was the first to select as abbreviations for exposition;[c] and he has two ways (conforming to what he had said in the first chapter of the present treatise) of enunciating the modes of the First figure. In one way, he begins with the major extreme (Predicate of the conclusion): A may be predicated of all B, B may be predicated of all C; therefore, A may be predicated of all C (Universal Affirmative). Again, A cannot be predicated of any B, B can be predicated of all C; therefore, A cannot be predicated of any C (Universal Negative). In the other way, he begins with the minor term (Subject of the conclusion): C is in the whole B, B is in the whole A; therefore, C is in the whole A (Universal Affirmative). And, C is in the whole B, B is not in the whole A; therefore, C is not in the whole A (Universal Negative). We see thus that in Aristotle's way of enunciating the First figure, the middle

[a] Analyt. Prior. I. xv. p. 34, a. 17; xxiii, p. 40, b. 35; Analyt. Poster. I. iii. p. 73, a. 7.

[b] Aristot. Analyt. Prior. I. iv. p. 25, b. 26, seq.

[c] M. Barthélemy St. Hilaire (Logique d'Aristote, vol. ii. p. 7, n.), referring to the examples of Conversion in chap. ii., observes:—"Voici le prémier usage des lettres représentant des idées; c'est un procédé tout à fait algébrique, c'est à dire, de généralisation. Déjà, dans l'Herméneia. ch. 13, § 1 et suiv., Aristote a fait usage de tableaux pour représenter sa pensée relativement à la consécution des modales. Il parle encore spécialement de figures explicatives, liv. 2. des Derniers Analytiques, ch. 17, § 7. Vingt passages de l'Histoire des Animaux attestent qu'il joignait des dessins à ses observations et à ses théories zoologiques. Les illustrations pittoresques datent donc de fort loin. L'emploi symbolique des lettres a été appliqué aussi par Aristote à la Physique. Il l'avait emprunté, sans doute, aux procédés des mathématiciens."

We may remark, however, that when Aristotle proceeds to specify those combinations of propositions which *do not* give a valid conclusion, he is not satisfied with giving letters of the alphabet; he superadds special illustrative examples (Analyt. Prior. I. v. p. 27, a. 7, 12, 34, 38).

term is really placed between the two extremes,[a] though this is not so in the Second and Third figures. In the modern way of enunciating these figures, the middle term is never placed between the two extremes; yet the denomination *middle* still remains.

The Modes of each figure are distinguished by the different character and relation of the two premisses, according as these are either affirmative or negative, either universal or particular. Accordingly, there are four possible varieties of each, and sixteen possible modes or varieties of combinations between the two. Aristotle goes through most of the sixteen modes, and shows that in the first Figure there are only four among them that are legitimate, carrying with them a necessary conclusion. He shows, farther, that in all the four there are two conditions observed, and that both these conditions are indispensable in the First figure:—(1) The major proposition must be universal, either affirmative or negative; (2) The minor proposition must be affirmative, either universal or particular or indefinite. Such must be the character of the premisses, in the first Figure, wherever the conclusion is valid and necessary; and *vice versâ*, the conclusion will be valid and necessary, when such is the character of the premisses.[b]

In regard to the four valid modes (*Barbara*, *Celarent*, *Darii*, *Ferio*, as we read in the scholastic Logic) Aristotle declares at once in general language that the conclusion follows necessarily; which he illustrates by setting down in alphabetical letters the skeleton of a syllogism in *Barbara*. If A is predicated of all B, and B of all C, A must necessarily be predicated of all C. But he does not justify it by any real example; he produces no special syllogism with real terms, and with a conclusion known beforehand to be true. He seems to think that the general doctrine will be accepted as evident without any such corroboration. He counts upon the learner's memory and phantasy for supplying, out of the past discourse of common life, propositions conforming to the conditions in which the symbolical letters have been placed, and for not supplying any contradictory examples. This might suffice for a treatise; but we may reasonably believe that Aristotle, when teaching in his school, would superadd illustrative examples; for the doctrine was then novel, and he is not unmindful of the errors into which learners often fall spontaneously.[c]

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[a] Aristot. Analyt. Prior. I. iv. p. 25, b. 35: *καλῶ δὲ μέσον, ὃ καὶ αὐτὸ ἐν ἄλλῳ καὶ ἄλλο ἐν τούτῳ ἐστίν, ὃ καὶ τῇ θέσει γίνεται μέσον.*

[b] Aristot. Analyt. Prior. I. iv. p. 26, b. 26, et sup.

[c] Analyt. Poster. I. xxiv. p. 85, b. 21.

When he deals with the remaining or invalid modes of the First figure, his manner of showing their invalidity is different, and in itself somewhat curious. "If (he says) the major term is affirmed of all the middle, while the middle is denied of all the minor, no necessary consequence follows from such being the fact, nor will there be any syllogism of the two extremes; for it is equally possible, either that the major term may be affirmed of all the minor, or that it may be denied of all the minor; so that no conclusion, either universal or particular, is necessary in all cases."[a] Examples of such double possibility are then exhibited: first, of three terms arranged in two propositions (A and E), in which, from the terms specially chosen, the major happens to be truly affirmable of all the minor; so that the third proposition is an universal Affirmative:—

Major and Middle.	Animal is predicable of every Man;
Middle and Minor.	Man is not predicable of any Horse;
Major and Minor.	Animal is predicable of every Horse.

Next, a second example is set out with new terms, in which the major happens not to be truly predicable of any of the minor; thus exhibiting as third proposition an universal Negative:—

Major and Middle.	Animal is predicable of every Man;
Middle and Minor.	Man is not predicable of any Stone;
Major and Minor.	Animal is not predicable of any Stone.

Here we see that the full exposition of a syllogism is indicated with real terms common and familiar to every one; alphabetical symbols would not have sufficed, for the learner must himself recognize the one conclusion as true, the other as false. Hence we are taught that, after two premisses thus conditioned, if we venture to join together the major and minor so as to form a pretended conclusion, we may in some cases obtain a true proposition universally Affirmative, in other cases a true proposition universally Negative. Therefore (Aristotle argues) there is no one necessary conclusion, the same in all cases, derivable from such premisses; in other words, this mode of syllogism is invalid and proves nothing. He applies the like reasoning to all the other invalid modes of the first Figure; setting them aside in the same way, and producing examples wherein double and opposite conclusions (improperly so called), both true, are obtained in different cases from the like arrangement of premisses.

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[a] Analyt. Prior. I. iv. p. 26, a. 2, seq.

This mode of reasoning plainly depends upon an appeal to prior experience. The validity or invalidity of each mode of the First figure is tested by applying it to different particular cases, each of which is familiar and known to the learner *aliunde;* in one case, the conjunction of the major and minor terms in the third proposition makes an universal Affirmative which he knows to be true; in another case, the like conjunction makes an universal Negative, which he also knows to be true; so that there is no one *necessary* (*i.e.* no one uniform and trustworthy) conclusion derivable from such premisses.[a] In other words, these modes of the First figure are not valid or available in form, the negation being sufficiently proved by one single undisputed example.

We are now introduced to the Second figure, in which each of the two premisses has the middle term as Predicate.[b] To give a legitimate conclusion in this figure, one or other of the premisses must be negative, and the major premiss must be universal; moreover no affirmative conclusions can ever be obtained in it— none but negative conclusions, universal or particular. In this Second figure too, Aristotle recognizes four valid modes; setting

[a] Though M. Barthélemy St. Hilaire (note, p. 19) declares Aristotle's exposition to be a model of analysis, it appears to me that the grounds for disallowing this invalid mode of the First figure (A—E—A, or A—E—E) are not clearly set forth by Aristotle himself, while they are rendered still darker by some of his best commentators. Thus Waitz says (p. 381): "Per exempla allata probat (Aristoteles) quod demonstrare debebat ex ipsâ ratione quam singuli termini inter se habeant: est enim proprium artis logicæ, ut terminorum rationem cognoscat, dum res ignoret. Num de Caio prædicetur animal nescit, scit de Caio prædicari animal, si animal de homine et homo de Caio prædicetur."

This comment of Waitz appears to me founded in error. Aristotle had no means of shewing the invalidity of the mode A E in the First figure, except by an appeal to particular examples. The invalidity of the invalid modes, and the validity of the valid modes, rest alike upon this ultimate reference to examples of propositions known to be true or false, by prior experience of the learner. The valid modes are those which will stand this trial and verification; the invalid modes are those which will not stand it. Not till such verification has been made, is one warranted in generalizing the result, and enunciating a formula applicable to unknown particulars (rationem terminorum cognoscere, dum res ignoret). It was impossible for Aristotle to do what Waitz requires of him. I take the opposite ground, and regret that he did not set forth the fundamental test of appeal to example and experience, in a more emphatic and unmistakeable manner.

M. Barthélemy St. Hilaire (in the note to his translation, p. 14) does not lend any additional clearness, when he talks of the "*conclusion*" from the propositions A and E in the First figure. Julius Pacius says (p. 134): "Si tamen *conclusio* dici debet, quæ non colligitur ex propositionibus," &c. Moreover, M. St. Hilaire (p. 19) slurs over the legitimate foundation, the appeal to experience, much as Aristotle himself does: "Puis prenant des exemples où la *conclusion est de toute évidence*, Aristote les applique successivement à chacune de ces combinaisons; celles qui donnent la *conclusion fournie d'ailleurs par le bon sens*, sont concluantes ou syllogistiques, les autres sont asyllogistiques."

[b] Analyt. Prior. I. v. p. 26, b. 34. As Aristotle enunciates a proposition by putting the predicate before the subject, he says that in this Second figure the middle term comes πρῶτον τῇ θέσει. In the Third figure, for the same reason, he calls it ἔσχατον τῇ θέσει, vi. p. 28, a 15.

aside the other possible modes as invalid[a] (in the same way as he had done in the First figure), because the third proposition or conjunction of the major term with the minor, might in some cases be a true universal affirmative, in other cases a true universal negative. As to the third and fourth of the valid modes, he demonstrates them by assuming the contradictory of the conclusion, together with the major premiss, and then showing that these two premisses form a new syllogism, which leads to a conclusion contradicting the minor premiss. This method, called *Reductio ad Impossibile*, is here employed for the first time; and employed without being ushered in or defined, as if it were familiarly known.[b]

Lastly, we have the Third figure, wherein the middle term is the Subject in both premisses. Here one at least of the premisses must be universal, either affirmative or negative. But no universal conclusions can be obtained in this figure; all the conclusions are particular. Aristotle recognizes six legitimate modes; in all of which the conclusions are particular, four of them being affirmative, two negative. The other possible modes he sets aside as in the two preceding figures.[c]

But Aristotle assigns to the First figure a marked superiority as compared with the Second and Third. It is the only one that yields perfect syllogisms; those furnished by the other two are all imperfect. The cardinal principle of syllogistic proof, as he conceives it, is—That whatever can be affirmed or denied of a whole, can be affirmed or denied of any part thereof.[d] The major proposition affirms or denies something universally respecting a certain whole; the minor proposition declares a certain part to be included in that whole. To this principle the four modes of the First figure manifestly and unmistakably conform, without any transformation of their premisses. But in the other figures such conformity does not obviously appear, and

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[a] Analyt. Prior. I. v. p. 27, a. 18. In these invalid modes, Aristotle says there is no *syllogism;* therefore we cannot properly speak of a *conclusion*, but only of a third proposition, conjoining the major with the minor.

[b] Ibid. p. 27, a. 15, 26, seq. It is said to involve *ὑπόθεσις*, p. 28, a. 7; to be *ἐξ ὑποθέσεως*, xxiii. p. 41, a. 25; to be *τοῦ ἐξ ὑποθέσεως μέρος*, as opposed to *δεικτικός*, xxiii. p. 40, b. 25.

M. B. St. Hilaire remarks justly, that Aristotle might be expected to define or explain what it is, on first mentioning it (note, p. 22).

[c] Ibid. I. vi. p. 28, a. 10-p. 29, a. 18.

[d] Ibid. I. xli. p. 49, b. 37: *ὅλως γὰρ ὃ μή ἐστιν ὡς ὅλον πρὸς μέρος καὶ ἄλλο πρὸς τοῦτο ὡς μέρος πρὸς ὅλον, ἐξ οὐδενὸς τῶν τοιούτων δείκνυσιν ὁ δεικνύων, ὥστε οὐδὲ γίνεται συλλογισμός.*

He had before said this about the relation of the three terms in the Syllogism, I. iv. p. 25, b. 32: *ὅταν ὅροι τρεῖς οὕτως ἔχωσι πρὸς ἀλλήλους ὥστε τὸν ἔσχατον ἐν ὅλῳ εἶναι τῷ μέσῳ καὶ τὸν μέσον ἐν ὅλῳ τῷ πρώτῳ ἢ εἶναι ἢ μὴ εἶναι, ἀνάγκη τῶν ἄκρων εἶναι συλλογισμὸν τέλειον* (*Dictum de Omni et Nullo*).

must be demonstrated by reducing their syllogisms to the First figure; either ostensively by exposition of a particular case, and conversion of the premisses, or by *Reductio ad Impossibile.* Aristotle, accordingly, claims authority for the Second and Third figures only so far as they can be reduced to the First.[a] We must, however, observe that in this process of reduction no new evidence is taken in; the matter of evidence remains unchanged, and the form alone is altered, according to laws of logical conversion which Aristotle has already laid down and justified. Another ground of the superiority and perfection which he claims for the First figure, is, that it is the only one in which every variety of conclusion can be proved; and especially the only one in which the Universal Affirmative can be proved—the great aim of scientific research. Whereas, in the Second figure we can prove only *negative* conclusions, universal or particular; and in the Third figure only *particular* conclusions, affirmative or negative.[b]

Such are the main principles of syllogistic inference and rules for syllogistic reasoning, as laid down by Aristotle. During the mediæval period, they were allowed to ramify into endless subtle technicalities, and to absorb the attention of teachers and studious men, long after the time when other useful branches of science and literature were pressing for attention. Through such prolonged monopoly—which Aristotle, among the most encyclopedical of all writers, never thought of claiming for them—they have become so discredited, that it is difficult to call back attention to them as they stood in the Aristotelian age. We have to remind the reader, again, that though language was then used with great ability for rhetorical and dialectical purposes, there existed as yet hardly any systematic or scientific study of it in either of these branches. The scheme and the terminology of any such science were alike unknown, and Aristotle was obliged to construct it himself from the foundation. The rhetorical and dialectical teaching as then given (he tells us) was mere unscientific routine, prescribing specimens of art to be committed to memory: respecting syllogism (or the conditions of legitimate deductive inference) absolutely nothing had been said.[c] Under these circum-

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[a] Analyt. Prior. I. vii. p. 29, a. 30-b. 25.

[b] Ibid. I. iv. p. 26, b. 30, p. 27, a. 1, p. 28, a. 9, p. 29, a. 15. An admissible syllogism in the Second or Third figure is sometimes called δυνατὸς as opposed to τέλειος, p. 41, b. 33. Compare Kampe, Die Erkenntniss-Theorie des Aristoteles, p. 245, Leipzig, 1870.

[c] Aristot. Sophist. Elench. p. 184, a. 1, b. 2: διόπερ ταχεῖα μὲν ἄτεχνος δ' ἦν ἡ διδασκαλία τοῖς μανθάνουσι παρ' αὐτῶν· οὐ γὰρ τέχνην ἀλλὰ τὰ ἀπὸ τῆς τέχνης διδόντες παιδεύειν ὑπελάμβανον . . . . περὶ δὲ τοῦ συλλογίζεσθαι παντελῶς οὐδὲν εἴχομεν πρότερον ἄλλο λέγειν, ἀλλ' ἢ τριβῇ ζητοῦντες πολὺν χρόνον ἐμονοῦμεν.

stances, his theory of names, notions, and propositions as employed for purposes of exposition and ratiocination, is a remarkable example of original inventive power. He had to work it out by patient and laborious research. No way was open to him except the diligent comparison and analysis of propositions. And though all students have now become familiar with the various classes of terms and propositions, together with their principal characteristics and relations, yet to frame and designate such classes for the first time without any precedent to follow, to determine for each the rules and conditions of logical convertibility, to put together the constituents of the Syllogism, with its graduation of Figures and difference of Modes, and with a selection, justified by reasons given, between the valid and the invalid modes—all this implies a high order of original systematizing genius, and must have required the most laborious and multiplied comparisons between propositions in detail.

The preceding abridgment of Aristotle's exposition of the Syllogism applies only to propositions simply affirmative or simply negative. But Aristotle himself, as already remarked, complicates the exposition by putting the Modal propositions (Possible, Necessary) upon the same line as the above-mentioned Simple propositions. I have noticed, in dealing with the treatise De Interpretatione, the confusion that has arisen from thus elevating the Modals into a line of classification co-ordinate with propositions simply Assertory. In the Analytica, this confusion is still more sensibly felt, from the introduction of syllogisms in which one of the premisses is necessary, while the other is only possible. We may remark, however, that, in the Analytica, Aristotle is stricter in defining the Possible than he has been in the De Interpretatione; for he now disjoins the Possible altogether from the Necessary, making it equivalent to the Problematical (not merely *may be*, but *may be or may not be.*)[a] In the middle, too, of his diffuse exposition of the Modals, he inserts one important remark, respecting universal propositions gene-

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[a] Analyt. Prior. I. viii. p. 29, a. 32; xiii. p. 32, a. 20-36: *τὸ γὰρ ἀναγκαῖον ὁμωνύμως ἐνδέχεσθαι λέγομεν*. In xiv. p. 33, b. 22, he excludes this equivocal meaning of *τὸ ἐνδεχόμενον — δεῖ δὲ τὸ ἐνδέχεσθαι λαμβάνειν μὴ ἐν τοῖς ἀναγκαίοις, ἀλλὰ κατὰ τὸν εἰρημένον διορισμόν*. See xiii. p. 32, a. 33, where *τὸ ἐνδέχεσθαι ὑπάρχειν* is asserted to be equivalent to or convertible with *τὸ ἐνδέχεσθαι μὴ ὑπάρχειν*; and xix. p. 38, a. 35: *τὸ ἐξ ἀνάγκης οὐκ ἦν ἐνδεχόμενον*. Theophrastus and Eudemus differed from Aristotle about his theory of the Modals in several points (Scholia ad Analyt. Priora, pp. 161, b. 30; 162, b. 23; 166, a. 12, b. 15, Brand.). Respecting the want of clearness in Aristotle about *τὸ ἐνδεχόμενον*, see Waitz's note ad. p. 32, b. 16. Moreover, he sometimes uses *ὑπάρχον* in the widest sense, including *ἐνδεχόμενον* and *ἀναγκαῖον*, xxiii. p. 40, b. 24.

rally, which belongs quite as much to the preceding exposition about propositions simply assertory. He observes that universal propositions have nothing to do with time, present, past, or future; but are to be understood in a sense absolute and unqualified.[a]

Having finished with the Modals, Aristotle proceeds to lay it down, that all demonstration must fall under one or other of the three figures just described; and therefore that all may be reduced ultimately to the two first modes of the First figure. You cannot proceed a step with two terms only and one proposition only. You must have two propositions including three terms; the middle term occupying the place assigned to it in one or other of the three figures.[b] This is obviously true when you demonstrate by direct or ostensive syllogism; and it is no less true when you proceed by *Reductio ad Impossibile.* This last is one mode of syllogizing from an hypothesis or assumption:[c] your conclusion being disputed, you prove it indirectly, by assuming its contradictory to be true, and constructing a new syllogism by means of that contradictory together with a second premiss admitted to be true; the conclusion of this new syllogism being a proposition obviously false or known beforehand to be false. Your demonstration must be conducted by a regular syllogism, as it is when you proceed directly and ostensively. The difference is, that the conclusion which you obtain is not that which you wish ultimately to arrive at, but something notoriously false. But as this false conclusion arises from your assumption or hypothesis that the contradictory of the conclusion originally disputed was true, you have indirectly made out your case that this contradictory must have been false, and therefore that the conclusion originally disputed was true. All this, however, has been demonstration by regular syllogism, but starting from an hypothesis assumed and admitted as one of the premisses.[d]

Aristotle here again enforces what he had before urged—that in every valid syllogism, one premiss at least must be affirmative, and one premiss at least must be universal. If the conclusion be universal, both premisses must be so likewise;

[a] Analyt. Prior. I. xv. p. 34, b. 7.

[b] Ibid. xxiii. p. 40, b. 20, p. 41, a. 4-20.

[c] Ibid. p. 40, b. 25: ἔτι ἢ δεικτικῶς ἢ ἐξ ὑποθέσεως· τοῦ δ' ἐξ ὑποθέσεως μέρος τὸ διὰ τοῦ ἀδυνάτου.

[d] Ibid. p. 41, a. 23: πάντες γὰρ οἱ διὰ τοῦ ἀδυνάτου περαίνοντες τὸ μὲν ψεῦδος συλλογίζονται, τὸ δ' ἐξ ἀρχῆς ἐξ ὑποθέσεως δεικνύουσιν, ὅταν ἀδύνατόν τι συμβαίνῃ τῆς ἀντιφάσεως τεθείσης.

It deserves to be remarked that Aristotle uses the phrase συλλογισμὸς ἐξ ὑποθέσεως, not συλλογισμὸς ὑποθετικός. This bears upon the question as to his views upon what subsequently received the title of *hypothetical syllogisms*; a subject to which I shall advert in a future note.

if it be particular, one of the premisses may not be universal. But without one universal premiss at least, there can be no syllogistic proof. If you have a thesis to support, you cannot assume (or ask to be conceded to you) that very thesis, without committing *petitio principii* (*i.e. quæsiti* or *probandi*); you must assume (or ask to have conceded to you) some universal proposition containing it and more besides; under which universal you may bring the subject of your thesis as a minor, and thus the premisses necessary for supporting it will be completed. Aristotle illustrates this by giving a demonstration that the angles at the base of an isosceles triangle are equal; justifying every step in the reasoning by an appeal to some universal proposition.[a]

Again, every demonstration is effected by two propositions (an *even* number) and by three terms (an *odd* number); though the same proposition may perhaps be demonstrable by more than one pair of premisses, or through more than one middle term;[b] that is, by two or more distinct syllogisms. If there be more than three terms and two propositions, either the syllogism will no longer be one but several; or there must be particulars introduced for the purpose of obtaining an universal by induction; or something will be included, superfluous and not essential to the demonstration, perhaps for the purpose of concealing from the respondent the real inference meant.[c] In the case (afterwards called *Sorites*) where the ultimate conclusion is obtained through several mean terms in continuous series, the number of terms will always exceed by one the number of propositions; but the numbers may be odd or even, according to circumstances. As terms are added, the total of intermediate conclusions, if drawn out in form, will come to be far greater than that of the terms or propositions, multiplying as it will do in an increasing ratio to them.[d]

It will be seen clearly from the foregoing remarks that there is a great difference between one thesis and another as to facility of attack or defence in Dialectic. If the thesis be an Universal Affirmative proposition, it can be demonstrated only in the First figure, and only by one combination of premisses; while, on the

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[a] Analyt. Prior. I. xxiv. p. 41, b. 6-31. The demonstration given (b. 13-22) is different from that which we read in Euclid, and is not easy to follow. It is more clearly explained by Waitz (p. 434) than either by Julius Pacius or by M. Barth. St. Hilaire (p. 108).

[b] Ibid. I. xxv. p. 41, b. 36, seq.

[c] Ibid. xxv. p. 42, a. 23: *μάτην ἔσται εἰλημμένα, εἰ μὴ ἐπαγωγῆς ἢ κρύψεως ἤ τινος ἄλλου τῶν τοιούτων χάριν.* Ib. a. 38: *οὗτος ὁ λόγος ἢ οὐ συλλελόγισται ἢ πλείω τῶν ἀναγκαίων ἠρώτηκε πρὸς τὴν θέσιν.*

[d] Ibid. p. 42, b. 5-26.

other hand, it can be impugned either by an universal negative, which can be demonstrated both in the First and Second figures, or by a particular negative, which can be demonstrated in all the three figures. Hence an Universal Affirmative thesis is at once the hardest to defend and the easiest to oppugn: more so than either a Particular Affirmative, which can be proved both in the First and Third figures; or a Universal Negative, which can be proved either in First or Second.[a] To the opponent, an universal thesis affords an easier victory than a particular thesis; in fact, speaking generally, his task is easier than that of the defendant.

In the Analytica Priora, Aristotle proceeds to tell us that he contemplates not only theory, but also practice and art. The reader must be taught, not merely to understand the principles of Syllogism, but likewise where he can find the matter for constructing syllogisms readily, and how he can obtain the principles of demonstration pertinent to each thesis propounded.[b]

A thesis being propounded in appropriate terms, with subject and predicate, how are you the propounder to seek out arguments for its defence? In the first place, Aristotle reverts to the distinction already laid down at the beginning of the Categoriæ.[c] Individual things or persons are subjects only, never appearing as predicates—this is the lowest extremity of the logical scale: at the opposite extremity of the scale, there are the highest generalities, predicates only, and not subjects of any predication, though sometimes supposed to be such, as matters of dialectic discussion.[d] Between the lowest and highest we have intermediate or graduate generalities, appearing sometimes as subjects, sometimes as predicates; and it is among these that the materials both of problems for debate, and of premisses for proof, are usually found.[e]

You must begin by putting down, along with the matter in hand itself, its definition and its *propria;* after that, its other predicates; next, those predicates which *cannot* belong to it;

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[a] Analyt. Prior. I. xxvi. p. 42, b. 27, p. 43, a. 15.

[b] Ibid. I. xxvii. p. 43, a. 20: *πῶς δ' εὐπορήσομεν αὐτοὶ πρὸς τὸ τιθέμενον ἀεὶ συλλογισμῶν, καὶ διὰ ποίας ὁδοῦ ληψόμεθα τὰς περὶ ἕκαστον ἀρχάς, νῦν ἤδη λεκτέον· οὐ γὰρ μόνον ἴσως δεῖ τὴν γένεσιν θεωρεῖν τῶν συλλογισμῶν, ἀλλὰ καὶ τὴν δύναμιν ἔχειν τοῦ ποιεῖν.* The second section of Book I. here begins.

[c] Ibid. I. xxvii. p. 43, a. 25, seq.

[d] Ibid. p. 43, a. 39: *πλὴν εἰ μὴ κατὰ δόξαν.* Cf. Schol. of Alexander, p. 175, a. 44, Br.: *ἐνδόξως καὶ διαλεκτικῶς, ὥσπερ εἶπεν ἐν τοῖς Τοπικοῖς,* that even the *principia* of science may be debated; for example, in book B. of the Metaphysica. Aristotle does not recognize either *τὸ ὄν* o *τὸ ἕν* as true genera, but only as predicates.

[e] Ibid. a. 40-43.

lastly, those other subjects, of which it may itself be predicated. You must classify its various predicates distinguishing the essential, the *propria*, and the accidental; also distinguishing the true and unquestionable, from the problematical and hypothetical.[a] You must look out for those predicates which belong to it as subject universally, and not to certain portions of it only; since universal propositions are indispensable in syllogistic proof, and indefinite propositions can only be reckoned as particular. When a subject is included in some larger genus—as, for example, man in animal—you must not look for the affirmative or negative predicates which belong to animal universally (since all these will of course belong to man also) but for those which distinguish man from other animals; nor must you, in searching for those lower subjects of which man is the predicate, fix your attention on the higher genus animal; for animal will of course be predicable of all those of which man is predicable. You must collect what pertains to man specially, either as predicate or subject; nor merely that which pertains to him necessarily and universally, but also usually and in the majority of cases; for most of the problems debated belong to this latter class, and the worth of the conclusion will be co-ordinate with that of the premisses. Do not select predicates that are predicable[c] both of the predicate and subject; for no valid affirmative conclusion can be obtained from them.

Thus, when the thesis to be maintained is an universal affirmative (*e.g.* A is predicable of all E), you will survey all the subjects to which A will apply as predicate, and all the predicates applying to E as subject. If these two lists coincide in any point, a middle term will be found for the construction of a good syllogism in the First figure. Let B represent the list of predicates belonging universally to A; D, the list of predicates which cannot belong to it; C, the list of subjects to which A pertains universally as predicate. Likewise, let F represent the

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[a] Analyt. Prior. I. xxvii. p. 43, b. 8: καὶ τούτων ποῖα δοξαστικῶς καὶ ποῖα κατ' ἀλήθειαν.

[b] Ibid. I. xxvii. p. 43, b. 10-35.

[c] Ibid. b. 36: ἔτι τὰ πᾶσιν ἑπόμενα οὐκ ἐκλεκτέον· οὐ γὰρ ἔσται συλλογισμὸς ἐξ αὐτῶν. The phrase τὰ πᾶσιν ἑπόμενα, as denoting predicates applicable both to the predicate and to the subject, is curious. We should hardly understand it, if it were not explained a little further on, p. 44, b. 21. Both the Scholiast and the modern commentators understand τὰ πᾶσιν ἑπόμενα in this sense; and I do not venture to depart from them. At the same time, when I read six lines afterwards (p. 44, b. 26) the words οἷον εἰ τὰ ἑπόμενα ἑκατέρῳ ταὐτά ἐστιν—in which the same meaning as that which the commentators ascribe to τὰ πᾶσιν ἑπόμενα is given in its own special and appropriate terms, and thus the same supposition unnecessarily repeated—I cannot help suspecting that Aristotle intends τὰ πᾶσιν ἑπόμενα to mean something different; to mean such wide and universal predicates as τὸ ἓν and τὸὄν which soar above the Categories and apply to every thing, but denote no real *genera*.

list of predicates belonging universally to E; H, the list of predicates that cannot belong to E; G, the list of subjects to which E is applicable as predicate. If, under these suppositions, there is any coincidence between the list C and the list F, you can construct a syllogism (in *Barbara*, Fig. 1), demonstrating that A belongs to *all* E; since the predicate in F belongs to all E, and A universally to the subject in C. If the list C coincides in any point with the list G, you can prove that A belongs to *some* E, by a syllogism (in *Darapti*, Fig. 3). If, on the other hand, the list F coincides in any point with the list D, you can prove that A cannot belong to any E: for the predicate in D cannot belong to any A, and therefore (by converting simply the universal negative) A cannot belong as predicate to any D; but D coincides with F, and F belongs to all E; accordingly, a syllogism (in *Celarent*, Fig. 1) may be constructed, shewing that A cannot belong to any E. So also, if B coincides in any point with H, the same conclusion can be proved; for the predicate in B belongs to all A, but B coincides with H, which belongs to no E; whence you obtain a syllogism (in *Camestres*, Fig. 2), shewing that no A belongs to E.[a] In collecting the predicates and subjects both of A and of E, the highest and most universal expression of them is to be preferred, as affording the largest grasp for the purpose of obtaining a suitable middle term.[b] It will be seen (as has been declared already) that every syllogism obtained will have three terms and two propositions; and that it will be in one or other of the three figures above described.[c]

The way just pointed out is the only way towards obtaining a suitable middle term. If, for example, you find some predicate applicable both to A and E, this will not conduct you to a valid syllogism; you will only obtain a syllogism in the Second figure with two affirmative premisses, which will not warrant any conclusion. Or if you find some predicate which cannot belong either to A or to E, this again will only give you a syllogism in

[a] Analyt. Prior. I. xxviii. p. 43, b. 39-p. 44, a. 35.

[b] Ibid. p. 44, a. 39. Alexander and Philoponus (Scholia, p. 177, a. 19, 39, Brandis) point out an inconsistency between what Aristotle says here and what he had said in one of the preceding paragraphs, dissuading the inquirer from attending to the highest generalities, and recommending him to look only at both subject and predicate in their special place on the logical scale. Alexander's way of removing the inconsistency is not successful: I doubt if there be an inconsistency. I understand Aristotle *here* to mean only that the universal expression ΚΖ (τὸ καθόλου Ζ) is to be preferred to the indefinite or indeterminate (simply Ζ, ἀδιόριστον), also ΚΓ (τὸ καθόλου Γ) to simple Γ (ἀδιόριστον). This appears to me not inconsistent with the recommendation which Aristotle had given before.

[c] Ibid. p. 44, b. 6-20.

the Second figure with two negative premisses, which leads to nothing. So also, if you have a term of which A can be predicated, but which cannot be predicated of E, you derive from it only a syllogism in the First figure, with its minor negative; and this, too, is invalid. Lastly, if you have a subject, of which neither A nor E can be predicated, your syllogism constructed from these conditions will have both its premisses negative, and will therefore be worthless.[a]

In the survey prescribed, nothing is gained by looking out for predicates (of A and E) which are different or opposite: we must collect such as are identical, since our purpose is to obtain from them a suitable middle term, which must be the same in both premisses. It is true that if the list B (containing the predicates universally belonging to A) and the list F (containing the predicates universally belonging to E) are incompatible or contrary to each other, you will arrive at a syllogism proving that no A can belong to E. But this syllogism will proceed, not so much from the fact that B and F are incompatible, as from the other fact, distinct though correlative, that B will to a certain extent coincide with H (the list of predicates which cannot belong to E). The middle term and the syllogism constituted thereby, is derived from the coincidence between B and H, not from the opposition between B and F. Those who derive it from the latter, overlook or disregard the real source, and adopt a point of view merely incidental and irrelevant.[b]

The precept here delivered—That in order to obtain middle terms and good syllogisms, you must study and collect both the predicates and the subjects of the two terms of your thesis—Aristotle declares to be equally applicable to all demonstration, whether direct or by way of *Reductio ad Impossibile*. In both the process of demonstration is the same—involving two premisses, three terms, and one of the three a suitable middle term. The only difference is, that in the direct demonstration, both premisses are propounded as true, while in the *Reductio ad Impossibile*, one of the premisses is assumed as true though known to be false, and the conclusion also.[c] In the other cases of hypothetical syllogism your attention must be directed, not to the original *quæsitum*, but to the condition annexed thereto; yet the search for predicates, subjects, and a middle term, must be conducted in the same manner.[d] Sometimes, by the help

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[a] Analyt. Prior. I. xxviii. p. 44, b. 25-37.

[b] Ibid. p. 44, b. 38-p. 45, a. 22. συμβαίνει δὴ τοῖς οὕτως ἐπισκοποῦσι προσεπιβλέπειν ἄλλην ὁδὸν τῆς ἀναγκαίας, διὰ τὸ λανθάνειν τὴν ταὐτότητα τῶν Β καὶ τῶν Θ.

[c] Ibid. I. xxix. p. 45, a 25-b. 15.

[d] Ibid. I. xxix. p. 45, b. 15-20. This

of a condition extraneous to the premisses, you may demonstrate an universal from a particular: *e.g.*, Suppose C (the list of subjects to which A belongs as predicate) and G (the list of subjects to which E belongs as predicate) to be identical; and suppose farther that the subjects in G are the *only* ones to which E belongs as predicate (this seems to be the *extraneous* or *extra-syllogistic* condition assumed, on which Aristotle's argument turns); then, A will be applicable to all E. Or if D (the list of predicates which cannot belong to A) and G (the list of subjects to which E belongs as predicate) are identical; then, assuming the like extraneous condition, A will not be applicable to any E.[a] In both these cases, the conclusion is more universal than the premisses; but it is because we take in an hypothetical assumption, in addition to the premisses.

Aristotle has now shown a method of procedure common to all investigations and proper for the solution of all problems, wherever soluble. He has shown, first, all the conditions and varieties of probative Syllogism, two premisses and three terms, with the place required for the middle term in each of the three figures; next, the quarter in which we are to look for all the materials necessary or suitable for constructing valid syllogisms. Having the two terms of the thesis given, we must study the predicates and subjects belonging to both, and must provide a large list of them; out of which list we must make selection according to the purpose of the moment. Our selection will be different, according as we wish to prove or to refute, and according as the conclusion that we wish to prove is an universal or a particular. The lesson here given will be most useful in teaching the reasoner to confine his attention to the sort of materials really promising, so that he may avoid wasting his time upon such as are irrelevant.[b]

This method of procedure is alike applicable to demonstration in Philosophy or in any of the special sciences,[c] and to debate

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paragraph is very obscure. Neither Alexander, nor Waitz, nor St. Hilaire clears it up completély. See Schol. pp. 178, b., 179, a. Brandis.

Aristotle concludes by saying that syllogisms from an hypothesis ought to be reviewed and classified into varieties—ἐπισκέψασθαι δὲ δεῖ καὶ διελεῖν ποσαχῶς οἱ ἐξ ὑποθέσεως (b. 20). But it is doubtful whether he himself ever executed this classification. It was done in the Analytica of his successor Theophrastus (Schol. p. 179, a. 6, 24). Compare the note of M. Barthélemy St. Hilaire, p. 140.

[a] Analyt. Prior. I. xxix. p. 45, b. 21-30.

[b] Ibid. b. 36-xxx. p. 46, a. 10.

[c] Ibid. p. 46, a. 8; κατὰ μὲν ἀλήθειαν ἐκ τῶν κατ' ἀλήθειαν διαγεγραμμένων ὑπάρχειν, εἰς δὲ τοὺς διαλεκτικοὺς συλλογισμοὺς ἐκ τῶν κατὰ δόξαν προτάσεων.

Julius Pacius (p. 257) remarks upon the word διαγεγραμμένων as indicating that Aristotle, while alluding to special sciences distinguishable from philosophy on one side, and from dialectic on the other, had in view geometrical demonstrations.

in Dialectic. In both, the premisses or *principia* of syllogisms must be put together in the same manner, in order to make the syllogism valid. In both, too, the range of topics falling under examination is large and varied; each topic will have its own separate premisses or *principia*, which must be searched out and selected in the way above described. Experience alone can furnish these *principia*, in each separate branch or department. Astronomical experience — the observed facts and phenomena of astronomy—have furnished the data for the scientific and demonstrative treatment of astronomy. The like with every other branch of science or art.[a] When the facts in each branch are brought together, it will be the province of the logician or analytical philosopher to set out the demonstrations in a manner clear and fit for use. For if nothing in the way of true matter of fact has been omitted from our observation, we shall be able to discover and unfold the demonstration, on every point where demonstration is possible; and, wherever it is not possible, to make the impossibility manifest.[b]

For the fuller development of these important principles, the reader is referred to the treatise on Dialectic, entitled Topica, which we shall come to in a future chapter. There is nothing in all Aristotle's writings more remarkable than the testimony here afforded, how completely he considered all the generalities of demonstrative science and deductive reasoning to rest altogether on experience and inductive observation.

We are next introduced to a comparison between the syllogistic method, as above described and systematized, and the process called logical Division into *genera* and *species;* a process much relied upon by other philosophers, and especially by Plato. This logical Division, according to Aristotle, is a

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[a] Analyt. Prior. I. xxx. p. 46, a. 10-20; *αἱ δ' ἀρχαὶ τῶν συλλογισμῶν καθόλου μὲν εἴρηνται—ἴδιαι δὲ καθ' ἑκάστην αἱ πλεῖσται. διὸ τὰς μὲν ἀρχὰς τὰς περὶ ἕκαστον ἐμπειρίας ἔστι παραδοῦναι. λέγω δ' οἷον τὴν ἀστρολογικὴν μὲν ἐμπειρίαν τῆς ἀστρολογικῆς ἐπιστήμης· ληφθέντων γὰρ ἱκανῶς τῶν φαινομένων οὕτως εὑρέθησαν αἱ ἀστρολογικαὶ ἀποδείξεις. ὁμοίως δὲ καὶ περὶ ἄλλην ὁποιανοῦν ἔχει τέχνην τε καὶ ἐπιστήμην.*

What Aristotle says here—of astronomical observation and experience as furnishing the basis for astronomical science—stands in marked contrast with Plato, who rejects this basis, and puts aside, with a sort of contempt, astronomical observation (Republic. vii. pp. 530-531); treating acoustics also in a similar way. Compare Aristot. Metaphys. Λ. p. 1073, a. 6, seq., with the commentary of Bonitz, p. 506.

[b] Analyt. Prior. I. xxx. p. 46, a. 22-27; *ὥστε ἂν ληφθῇ τὰ ὑπάρχοντα περὶ ἕκαστον, ἡμέτερον ἤδη τὰς ἀποδείξεις ἑτοίμως ἐμφανίζειν. εἰ γὰρ μηδὲν κατὰ τὴν ἱστορίαν παραλειφθείη τῶν ἀληθῶς ὑπαρχόντων τοῖς πράγμασιν, ἕξομεν περὶ ἅπαντος οὗ μὲν ἔστιν ἀπόδειξις, ταύτην εὑρεῖν καὶ ἀποδεικνύναι, οὗ δὲ μὴ πέφυκεν ἀπόδειξις, τοῦτο ποιεῖν φανερόν.*

Respecting the word *ἱστορία*—investigation and record of matters of fact—the first sentence of Herodotus may be compared with Aristotle, Histor. Animal. p. 491, a. 12; also p. 757, b. 35; Rhetoric. p. 1359, b. 32.

mere fragment of the syllogistic procedure; nothing better than a feeble syllogism.[a] Those who employed it were ignorant both of Syllogism and of its conditions. They tried to demonstrate —what never can be demonstrated—the essential constitution of the subject.[b] Instead of selecting a middle term, as the Syllogism requires, more universal than the subject but less universal (or not more so) than the predicate, they inverted the proper order, and took for their middle term the highest universal. What really requires to be demonstrated, they never demonstrated but assume.[c]

Thus, they take the subject man, and propose to prove that man is mortal. They begin by laying down than man is an animal, and that every animal is either mortal or immortal. Here, the most universal term, animal, is selected as middle or as medium of proof; while after all, the conclusion demonstrated is, not that man is mortal, but that man is either mortal or immortal. The position that man is mortal, is assumed but not proved.[c] Moreover, by this method of logical division, all the steps are affirmative and none negative; there cannot be any refutation of error. Nor can any proof be given thus respecting *genus*, or *proprium*, or *accidens;* the *genus* is assumed, and the method proceeds from thence to *species* and *differentia.* No doubtful matter can be settled, and no unknown point elucidated by this method; nothing can be done except to arrange in a certain order what is already ascertained and unquestionable. To many investigations, accordingly, the method is altogether inapplicable; while even where it is applicable, it leads to no useful conclusion.[d]

We now come to that which Aristotle indicates as the third section of this First Book of the Analytica Priora. In the first section he explained the construction and constituents of Syllogism, the varieties of figure and mode, and the conditions indispensable to a valid conclusion. In the second section he tells us where we are to look for the premisses of syllogisms, and how we may obtain a stock of materials, apt and ready for use when required. There remains one more task to complete his plan—that he should teach the manner of reducing argumentation as it actually occurs (often invalid, and even when

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[a] Analyt. Prior. I. xxxi. p. 46, a. 33. Alexander, in Scholia, p. 180, a. 14. The Platonic method of *διαίρεσις* is exemplified in the dialogues called Sophistês and Politicus; compare also Philêbus, c. v., p. 15.

[b] Ibid. p. 46, a. 34: *πρῶτον δ' αὐτὸ τοῦτο ἐλελήφει τοὺς χρωμένους αὐτῇ πάντας, καὶ πείθειν ἐπεχείρουν ὡς ὄντος δυνατοῦ περὶ οὐσίας ἀπόδειξιν γίνεσθαι καὶ τοῦ τί ἐστιν.*

[c] Ibid. p. 46, b. 1-12.

[d] Ibid. b. 26-37. Alexander in Schol. p. 180, b. 1.

valid, often elliptical and disorderly), to the figures of syllogism as above set forth, for the purpose of testing its validity.[a] In performing this third part (Aristotle says) we shall at the same time confirm and illustrate the two preceding parts; for truth ought in every way to be consistent with itself.[b]

When a piece of reasoning is before us, we must first try to disengage the two syllogistic premisses (which are more easily disengaged than the three terms), and note which of them is universal or particular. The reasoner, however, may not have set out both of them clearly: sometimes he will leave out the major, sometimes the minor, and sometimes, even when enunciating both of them, he will join with them irrelevant matter. In either of these cases we must ourselves supply what is wanting and strike out the irrelevant. Without this aid, reduction to regular syllogism is impracticable; but it is not always easy to see what the exact deficiency is. Sometimes indeed the conclusion may follow necessarily from what is implied in the premisses, while yet the premisses themselves do not form a correct syllogism; for though every such syllogism carries with it necessity, there may be necessity without a syllogism. In the process of reduction, we must first disengage and set down the two premisses, then the three terms; out of which three, that one which appears twice will be the middle term. If we do not find one term twice repeated, we have got no middle and no real syllogism. Whether the syllogism when obtained will be in the first, second, or third figure, will depend upon the place of the middle term in the two premisses. We know by the nature of the conclusion which of the three figures to look for, since we have already seen what conclusions can be demonstrated in each.[c]

Sometimes we may get premisses which look like those of a true syllogism, but are not so in reality; the major proposition ought to be an universal, but it may happen to be only indefinite, and the syllogism will not in all cases be valid; yet the distinction between the two often passes unnoticed.[d] Another source

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[a] Analyt. Prior. I. xxxii. p. 47, a. 2: λοιπὸν γὰρ ἔτι τοῦτο τῆς σκέψεως· εἰ γὰρ τήν τε γένεσιν τῶν συλλογισμῶν θεωροῖμεν καὶ τοῦ εὑρίσκειν ἔχοιμεν δύναμιν, ἔτι δὲ τοὺς γεγενημένους ἀναλύοιμεν εἰς τὰ προειρημένα σχήματα, τέλος ἂν ἔχοι ἡ ἐξ ἀρχῆς πρόθεσις.

[b] Ibid. a. 8.

[c] Ibid. a. 10-b. 14.

[d] Ibid. I. xxxiii. p. 47, b. 16-40: αὕτη μὲν οὖν ἡ ἀπάτη γίνεται ἐν τῷ παρὰ μικρόν· ὡς γὰρ οὐδὲν διαφέρον εἰπεῖν τόδε τῷδε ὑπάρχειν, ἢ τόδε τῷδε παντὶ ὑπάρχειν, συγχωροῦμεν.

M. B. St. Hilaire observes in his note (p. 155): "L'erreur vient uniquement de ce qu'on confond l'universel et l'indeterminé séparés par une nuance très faible d'expression, qu'on ne doit pas cependant négliger." Julius Pacius (p. 264) gives the same explanation at greater length; but the example chosen by Aristotle (ὁ

of fallacy is, that we may set out the terms incorrectly; by putting (in modern phrase) the abstract instead of the concrete, or abstract in one premiss and concrete in the other.[a] To guard against this, we ought to use the concrete term in preference to the abstract. For example, let the major proposition be, Health cannot belong to any disease; and the minor, Disease can belong to any man; *Ergo*, Health cannot belong to any man. This conclusion seems valid, but is not really so. We ought to substitute concrete terms to this effect:—It is impossible that the sick can be well; Any man may be sick; *Ergo*, It is impossible that any man can be well. To the syllogism, now, as stated in these concrete terms, we may object, that the major is not true. A person who is at the present moment sick may at a future time become well. There is therefore no valid syllogism.[b] When we take the concrete man, we may say with truth that the two contraries, health-sickness, knowledge-ignorance, *may* both alike belong to him; though not to the same individual at the same time.

Again, we must not suppose that we can always find one distinct and separate name belonging to each term. Sometimes one or all of the three terms can only be expressed by an entire phrase or proposition. In such cases it is very difficult to reduce the reasoning into regular syllogism. We may even be deceived into fancying that there are syllogisms without any middle term at all, because there is no single word to express it. For example, let A represent equal to two right angles; B, triangle; C, isosceles. Then we have a regular syllogism, with an explicit and single-worded middle term; A belongs first to B, and then to C through B as middle term (triangle). But how do we know that A belongs to B? We know it by demonstration; for it is a demonstrable truth that every triangle has its three angles equal to two right angles. Yet there is no other more general truth about triangles from which it is a deduction; it belongs to the triangle *per se*, and follows from the fundamental properties of the figure.[c] There is, however, a middle term in the demonstration, though it is not single-worded and explicit; it is a declaratory proposition or a fact. We must not suppose that there can be any demonstration without a middle term, either single-worded or many-worded.

'Αριστομένης ἐστὶ διανοητὸς 'Αριστομένης) appears open to other objections besides.

[a] Analyt. Prior. I. xxxiv. p. 48, a. 1-28.

[b] Ibid. a. 2-23. See the Scholion of Alexander, p. 181, b. 16-27, Brandis.

[c] Ibid. I. xxxv. p. 48, a 30-39: φανερὸν ὅτι τὸ μέσον οὐχ οὕτως ἀεὶ ληπτέον ὡς τόδε τι, ἀλλ' ἐνίοτε λόγον, ὅπερ συμβαίνει κἀπὶ τοῦ λεχθέντος. A good Scholion of Philoponus is given, p. 181, b. 28-45, Brand.

When we are reducing any reasoning to a syllogistic form, and tracing out the three terms of which it is composed, we must expose or set out these terms in the nominative case; but when we actually construct the syllogism or put the terms into propositions, we shall find that one or other of the oblique cases, genitive, dative, &c., is required.[a] Moreover, when we say, 'this belongs to that,' or 'this may be truly predicated of that, we must recollect that there are many distinct varieties in the relation of predicate to subject. Each of the Categories has its own distinct relation to the subject; predication *secundum quid* is distinguished from predication *simpliciter*, simple from combined or compound, &c. This applies to negatives as well as affirmatives.[b] There will be a material difference in setting out the terms of the syllogism, according as the predication is qualified (*secundum quid*) or absolute (*simpliciter*). If it be qualified, the qualification attaches to the predicate, not to the subject: when the major proposition is a qualified predication, we must consider the qualification as belonging, not to the middle term, but to the major term, and as destined to re-appear in the conclusion. If the qualification be attached to the middle term, it cannot appear in the conclusion, and any conclusion that embraces it will not be proved. Suppose the conclusion to be proved is, The wholesome is knowledge *quatenus bonum* or *quod bonum est;* the three terms of the syllogism must stand thus:—

Major—*Bonum* is knowable, *quatenus bonum* or *quod bonum est.*

Minor—The wholesome is *bonum.*

Ergo—The wholesome is knowable, *quatenus bonum,* &c.

For every syllogism in which the conclusion is qualified, the terms must be set out accordingly.[c]

We are permitted, and it is often convenient, to exchange one phrase or term for another of equivalent signification, and also one word against any equivalent phrase. By doing this, we often faciliate the setting out of the terms. We must carefully

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[a] Analyt. Prior. I. xxxvi. p. 48, a. 40-p. 49, a. 5. ἁπλῶς λέγομεν γὰρ τοῦτο κατὰ πάντων, ὅτι τοὺς μὲν ὅρους ἀεὶ θετέον κατὰ τὰς κλήσεις τῶν ὀνομάτων—τὰς δὲ προτάσεις ληπτέον κατὰ τὰς ἑκάστου πτώσεις· Several examples are given of this precept.

[b] Ibid. I. xxxvii. p. 49, a. 6-10. Alexander remarks in the Scholia (p. 183, a. 2) that the distinction between simple and compound predication has already been adverted to by Aristotle in De Interpretatione (see p. 20, b. 35); and that it was largely treated by Theophrastus in his work, Περὶ Καταφάσεως, not preserved.

[c] Ibid. I. xxxviii. p. 49, a. 11-b. 2. φανερὸν οὖν ὅτι ἐν τοῖς ἐν μέρει συλλογισμοῖς οὕτω ληπτέον τοὺς ὅρους. Alexander explains οἱ ἐν μέρει συλλογισμοί (Schol. p. 183, b. 32, Br.) to be those in which the predicate has a qualifying adjunct tacked to it.

note the different meanings of the same substantive noun, according as the definite article is or is not prefixed. We must not reckon it the same term, if it appears in one premiss with the definite article, and in the other without the definite article.[a] Nor is it the same proposition to say B is predicable of C (indefinite), and B is predicable of *all* C (universal). In setting out the syllogism, it is not sufficient that the major premiss should be indefinite; the major premiss must be universal; and the minor premiss also, if the conclusion is to be universal. If the major premiss be universal, while the minor premiss is only affirmative indefinite, the conclusion cannot be universal, but will be no more than indefinite, that is, counting as particular.[b]

There is no fear of our being misled by setting out a particular case for the purpose of the general demonstration; for we never make reference to the specialties of the particular case, but deal with it as the geometer deals with the diagram that he draws. He calls the line A B, straight, a foot long, and without breadth, but he does not draw any conclusion from these assumptions. All that syllogistic demonstration either requires or employs, is, terms that are related to each other either as whole to part or as part to whole. Without this, no demonstration can be made: the exposition of the particular case is intended as an appeal to the senses, for facilitating the march of the student, but is not essential to demonstration.[c]

Aristotle reminds us once more of what he had before said, that in the Second and Third figures, not all varieties of conclusion are possible, but only some varieties; accordingly, when we are reducing a piece of reasoning to the syllogistic form, the nature of the conclusion will inform us which of the three

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[a] Analyt. Prior. I. xxxix.-xl. p. 49, b. 3-13. *οὐ ταὐτόν ἐστι τὸ εἶναι τὴν ἡδονὴν ἀγαθὸν καὶ τὸ εἶναι τὴν ἡδονὴν τὸ ἀγαθόν*, &c.

[b] Ibid. I. xli. p. 49, b. 14-32. The Scholion of Alexander (Schol. p. 184, a. 22-40) alludes to the peculiar mode, called by Theophrastus *κατὰ πρόσληψιν*, of stating the premisses of the syllogism: two terms only, the major and the middle, being enunciated, while the third or minor was included potentially, but not enunciated. Theophrastus, however, did not recognize the distinction of meaning to which Aristotle alludes in this chapter. He construed as an universal minor, what Aristotle treats as only an indefinite minor. The liability to mistake the Indefinite for an Universal is here again adverted to.

[c] Ibid. I. xli. p. 50, a. 1: *τῷ δ' ἐκτίθεσθαι οὕτω χρώμεθα ὥσπερ καὶ τῷ αἰσθάνεσθαι, τὸν μανθάνοντα λέγοντες· οὐ γὰρ οὕτως ὡς ἄνευ τουτων οὐχ οἷόν τ' ἀποδειχθῆναι, ὥσπερ ἐξ ὧν ὁ συλλογισμός.*

This chapter is a very remarkable statement of the Nominalistic doctrine; perceiving or conceiving all the real specialties of a particular case, but attending to, or reasoning upon, only a portion of them.

Plato treats it as a mark of the inferior scientific value of Geometry, as compared with true and pure Dialectic, that the geometer cannot demonstrate through Ideas and Universals alone, but is compelled to help himself by visible particular diagrams or illustrations. (Plato, Repub. vi. pp. 510-511, vii. p. 533, C.)

figures we must look for. In the case where the question debated relates to a definition, and the reasoning which we are trying to reduce turns upon one part only of that definition, we must take care to look for our three terms only in regard to that particular part, and not in regard to the whole definition.[a] All the modes of the Second and Third figures can be reduced to the First, by conversion of one or other of the premisses; except the fourth mode (*Baroco*) of the Second, and the fifth mode (*Bocardo*) of the Third, which can be proved only by *Reductio ad Absurdum*.[b]

No syllogisms from an Hypothesis, however, are reducible to any of the three figures; for they are not proved by syllogism alone: they require besides an extra-syllogistic assumption granted or understood between speaker and hearer. Suppose an hypothetical proposition given, with antecedent and consequent: you may perhaps prove or refute by syllogism either the antecedent separately, or the consequent separately, or both of them separately; but you cannot directly either prove or refute by syllogism the conjunction of the two asserted in the hypothetical. The speaker must ascertain beforehand that this will be granted to him; otherwise he cannot proceed.[c] The same is true about the procedure by *Reductio ad Absurdum*, which involves an hypothesis over and above the syllogism. In employing such *Reductio ad Absurdum*, you prove syllogistically a certain conclusion from certain premisses; but the conclusion is manifestly false; therefore, one at least of the premisses from which it follows must be false also. But if this reasoning is to have force, the hearer must know *aliunde* that the conclusion is false; your syllogism has not shown it to be false, but has shown it to be hypothetically true; and unless the hearer is prepared to grant the conclusion to be false, your purpose is not attained. Sometimes he will grant it without being expressly asked, when the falsity is glaring: *e.g.* you prove that the diagonal of a square is incommensurable with the side, because if it were taken as commensurable, an odd number might be shown to be equal to an even number. Few disputants will hesitate to grant that this conclusion is false, and therefore that its contradictory is true; yet this last (viz. that the contradictory is true) has not been proved syllogistically; you

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[a] Analyt. Prior. I. xlii., xliii. p. 50, a. 5-15. I follow here the explanation given by Philoponus and Julius Pacius, which M. Barthélemy St. Hilaire adopts. But the illustrative example given by Aristotle himself (the definition of *water*) does not convey much instruction.

[b] Ibid. xlv. p. 50, b. 5-p. 51, b. 2.

[c] Ibid. xliv. p. 50, a. 16-28.

must assume it by hypothesis, or depend upon the hearer to grant it.[a]

Here Aristotle expressly reserves for separate treatment the general subject of Syllogisms from Hypothesis.[b]

In the last chapter of the first book of the Analytica Priora, Aristotle returns to the point which we have already considered in the treatise De Interpretatione, viz. what is really a *negative* proposition; and how the adverb of negation must be placed in order to constitute one. We must place this adverb immediately before the copula and in conjunction with the copula: we must not place it after the copula and in conjunction with the predicate; for, if we do so, the proposition resulting will not be negative but affirmative (*ἐκ μεταθέσεως*, *by transposition*, ac-

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[a] Analyt. Prior. I. xliv. p. 50, a. 29-38. See above, xxiii. p. 40, a. 25.

M. Barthélemy St. Hilaire remarks in the note to his translation of the Analytica Priora (p. 178): "Ce chapitre suffit à prouver qu' Aristote a distingué très-nettement les syllogismes par l'absurde, des syllogismes hypothétiques. Cette dernière dénomination est tout à fait pour lui ce qu'elle est pour nous." Of these two statements, I think the *latter* is more than we can venture to affirm, considering that the general survey of hypothetical syllogisms, which Aristotle intended to draw up, either never was really completed, or at least has perished: the *former* appears to me incorrect. Aristotle decidedly reckons the *Reductio ad Impossibile* among hypothetical proofs. But he understands by *Reductio ad Impossibile* something rather wider than what the moderns understand by it. It now means only, that you take the contradictory of the conclusion together with one of the premisses, and by means of these two demonstrate a conclusion contradictory or contrary to the other premiss But Aristotle understood by it this, and something more besides, namely, whenever, by taking the contradictory of the conclusion, together with some other incontestable premiss, you demonstrate, by means of the two, some new conclusion notoriously false. What I here say, is illustrated by the very example which he gives in this chapter. The incommensurability of the diagonal (with the side of the square) is demonstrated by *Reductio ad Impossibile;* because if it be supposed commensurable, you may demonstrate that an odd number is equal to an even number; a conclusion which every one will declare to be inadmissible, but which is not the contradictory of either of the premisses whereby the true proposition was demonstrated.

[b] The expressions of Aristotle here are remarkable, Analyt. Prior. I. xliv. p. 50, a. 39-b. 3: *πολλοὶ δὲ καὶ ἕτεροι περαίνονται ἐξ ὑποθέσωος, οὓς ἐπισκέψασθαι δεῖ καὶ διασημῆναι καθαρῶς. τίνες μὲν οὖν αἱ διαφοραὶ τούτων, καὶ ποσαχῶς γίνεται τὸ ἐξ ὑποθέσεως, ὕστερον ἐροῦμεν· νῦν δὲ τοσοῦτον ἡμῖν ἔστω φανερόν, ὅτι οὐκ ἔστιν ἀναλύειν εἰς τὰ σχήματα τοὺς τοιούτους συλλογισμούς. καὶ δι' ἣν αἰτίαν, εἰρήκαμεν.*

Syllogisms from Hypothesis were many and various, and Aristotle intended to treat them in a future treatise; but all that concerns the present treatise, in his opinion, is, to show that none of them can be reduced to the three Figures. Among the Syllogisms from Hypothesis, two varieties recognized by Aristotle (besides *οἱ διὰ τοῦ ἀδυνάτου*) were *οἱ κατὰ μετάληψιν* and *οἱ κατὰ ποιότητα*. The same proposition which Aristotle entitles *κατὰ μετάληψιν*, was afterwards designated by the Stoics *κατὰ πρόσληψιν* (Alexander ap. Schol. p. 178, b. 6-24).

It seems that Aristotle never realized this intended future treatise on Hypothetical Syllogisms; at least Alexander did not know it. The subject was handled more at large by Theophrastus and Eudêmus after Aristotle (Schol. p. 184, b. 45, Br.; Boethius, De Syllog. Hypothetico, pp. 606-607); and was still farther expanded by Chrysippus and the Stoics.

Compare Prantl, Geschichte der Logik, I. pp. 295, 377, seq. He treats the Hypothetical Syllogism as having no logical value, and commends Aristotle for declining to develop or formulate it; while Ritter (Gesch. Phil. iii. p. 93), and, to a certain extent, Ueberweg (System der Logik, sect. 121, p. 326), consider this to be a defect in Aristotle.

cording to the technical term introduced afterwards by Theophrastus). Thus of the four propositions:

1. Est bonum.	2. Non est bonum.
4. Non est non bonum.	3. Est non bonum.

No. 1 is affirmative; No. 3 is affirmative (ἐκ μεταθέσεως); Nos. 2 and 4 are negative. Wherever No. 1 is predicable, No. 4 will be predicable also; wherever No. 3 is predicable, No. 2 will be predicable also—but in neither case *vice versâ*.[a] Mistakes often flow from incorrectly setting out the two contradictories.

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[a] Analyt. Prior. I. xlvi. p. 51, b. 5, ad finem. See above, Chap. IV. p. 118, seq.

CHAPTER VI.

ANALYTICA PRIORA II.

THE Second Book of the Analytica Priora seems conceived with a view mainly to Dialectic and Sophistic, as the First Book bore more upon Demonstration.[a] Aristotle begins the Second Book by shortly recapitulating what he had stated in the First; and then proceeds to touch upon some other properties of the Syllogism. Universal syllogisms (those in which the conclusion is universal) he says, have always more conclusions than one; particular syllogisms sometimes, but not always, have more conclusions than one. If the conclusion be universal, it may always be converted—*simply*, when it is negative, or *per accidens*, when it is affirmative; and its converse thus obtained will be proved by the same premisses. If the conclusion be particular, it will be convertible simply when affirmative, and its converse thus obtained will be proved by the same premisses; but it will not be convertible at all when negative, so that the conclusion proved will be only itself singly.[b] Moreover, in the universal syllogisms of the First figure (*Barbara, Celarent*), any of the particulars comprehended under the minor term may be substituted in place of the minor term as subject of the conclusion, and the proof will hold good in regard to them. So, again, all or any of the particulars comprehended in the middle term may be introduced as subject of the conclusion in place of the minor term; and the conclusion will still remain true. In the Second figure, the change is admissible only in regard to those particulars comprehended under the subject of the conclusion or minor term, and not (at least upon the strength of the syllogism) in regard to those comprehended under the middle term. Finally, wherever the conclusion is particular, the change is admissible, though not by reason of the syllogism in regard to particulars comprehended under the middle term;

[a] This is the remark of the ancient Scholiasts. See Schol. p. 188, a. 44, b. 11.
[b] Analyt. Prior. II. i. p. 53, a. 3-14.

it is not admissible as regards the minor term, which is itself particular.[a]

Aristotle has hitherto regarded the Syllogism with a view to its *formal* characteristics: he now makes an important observation which bears upon its *matter*. Formally speaking, the the two premisses are always assumed to be true; but in any real case of syllogism (form and matter combined) it is possible that either one or both may be false. Now, Aristotle remarks that if both the premisses are true (the syllogism being correct in form), the conclusion must of necessity be true; but that if either or both the premisses are false, the conclusion need not necessarily be false likewise. The premisses being false, the conclusion may nevertheless be true; but it will not be true because of or by reason of the premisses.[b]

First, he would prove that if the premisses be true, the conclusion must be true also; but the proof that he gives does not seem more evident than the *probandum* itself. Assume that if A exists, B must exist also: it follows from hence (he argues) that if B does not exist, neither can A exist; which he announces as a *reductio ad absurdum*, seeing that it contradicts the fundamental supposition of the existence of A.[c] Here the *probans* is indeed equally evident with the *probandum*, but not at all more evident; one who disputes the latter, will dispute the former also. Nothing is gained in the way of proof by making either of them dependent on the other. Both of them are alike self-evident; that is, if a man hesitates to admit either of them, you have no means of removing his scruples except by inviting him to try the general maxim upon as many particular cases as he chooses, and to see whether it does not hold good without a single exception.

In regard to the case here put forward as illustration, Aristotle has an observation which shows his anxiety to maintain

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[a] Analyt. Prior. II. i. p. 53, a. 14-35. M. Barthélemy St. Hilaire, following Pacius, justly remarks (note, p. 203 of his translation) that the rule as to particulars breaks down in the cases of *Baroco*, *Disamis*, and *Bocardo*.

On the chapter in general he remarks (note, p. 204):—"Cette théorie des conclusions diverses, soit patentes soit cachées, d'un même syllogisme, est surtout utile en dialectique, dans la discussion; où il faut faire la plus grande attention à ce qu'on accorde à l'adversaire, soit explicitement, soit implicitement." This illustrates the observation cited in the preceding note from the Scholiasts.

[b] Analyt. Prior. II. ii. p. 53, b. 5-10: *ἐξ ἀληθῶν μὲν οὖν οὐκ ἔστι ψεῦδος συλλογίσασθαι, ἐκ ψευδῶν δ' ἔστιν ἀληθές, πλὴν οὐ διότι ἀλλ' ὅτι· τοῦ γὰρ διότι οὐκ ἔστιν ἐκ ψευδῶν συλλογισμός· δι' ἣν δ' αἰτίαν, ἐν τοῖς ἑπομένοις λεχθήσεται.*

The true conclusion is not true by reason of these false premisses, but by reason of certain other premisses which are true, and which may be produced to demonstrate it. Compare Analyt. Poster. I. ii. p. 71, b. 19.

[c] Ibid. II. ii. p. 53, b. 11-16.

the characteristic principles of the Syllogism; one of which principles he had declared to be—That nothing less than three terms and two propositions, could warrant the inferential step from premisses to conclusion. In the present case he assumed, If A exists, then B must exist; giving only one premiss as ground for the inference. This (he adds) does not contravene what has been laid down before; for A in the case before us represents two propositions conceived in conjunction.[a] Here he has given the type of hypothetical reasoning; not recognizing it as a variety *per se,* nor following it out into its different forms (as his successors did after him), but resolving it into the categorical syllogism.[b] He however conveys very clearly the cardinal principle of all hypothetical inference—That if the antecedent be true, the consequent must be true also, but not *vice versâ;* if the consequent be false, the antecedent must be false also, but not *vice versâ.*

Having laid down the principle, that the conclusion may be true, though one or both the premisses are false, Aristotle proceeds, at great length, to illustrate it in its application to each of the three syllogistic figures.[c] No portion of the Analytica is traced out more perspicuously than the exposition of this most important logical doctrine.

It is possible (he then continues, again at considerable length) to invert the syllogism and to demonstrate *in a circle.* That is, you may take the conclusion as premiss for a new syllogism, together with one of the old premisses, transposing its terms; and thus you may demonstrate the other premiss. You may do this successively, first with the major, to demonstrate the minor; next, with the minor, to demonstrate the major. Each of the premisses will thus in turn be made a demonstrated conclusion; and the circle will be complete. But this can be done perfectly only in *Barbara,* and when, besides, all the three terms of the syllogism reciprocate with each other, or are co-extensive in import; so that each of the two premisses admits of being simply converted. In all other cases, the process of circular demonstration, where possible at all, is more or less imperfect.[d]

Having thus shown under what conditions the conclusion

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[a] Analyt. Prior. II. ii. p. 53, b. 16-25. *τὸ οὖν A ὥσπερ ἓν κεῖται, δύο προτάσεις συλληφθεῖσαι.*

[b] Aristotle, it should be remarked, uses the word *κατηγορικός*, not in the sense which it subsequently acquired, as the antithesis of *ὑποθετικός* in application to the proposition and syllogism, but in the sense of affirmative as opposed to *στερητικός.*

[c] Analyt. Prior. II. ii.-iv. p. 53, b. 26-p. 57, b. 17. At the close (p. 57, a. 36-b. 17), the general doctrine is summed up.

[d] Ibid. II. v.-viii. p. 57, b. 18-p. 59, a. 35.

can be employed for the demonstration of the premisses, Aristotle proceeds to state by what transformation it can be employed for the refutation of them. This he calls *converting* the syllogism; a most inconvenient use of the term *convert* (ἀντιστρέφειν), since he had already assigned to that same term more than one other meaning, distinct and different, in logical procedure.[a] What it here means is *reversing* the conclusion, so as to exchange it either for its contrary, or for its contradictory; then employing this reversed proposition as a new premiss, along with one of the previous premisses, so as to disprove the other of the previous premisses—*i.e.* to prove its contrary or contradictory. The result will here be different, according to the manner in which the conclusion is reversed; according as you exchange it for its contrary or its contradictory. Suppose that the syllogism demonstrated is: A belongs to all B, B belongs to all C; *Ergo,* A belongs to all C (*Barbara*). Now, if we reverse this conclusion by taking its *contrary,* A belongs to no C, and if we combine this as a new premiss with the major of the former syllogism, A belongs to all B, we shall obtain as a conclusion B belongs to no C; which is the *contrary* of the minor, in the form *Camestres.* If, on the other hand, we reverse the conclusion by taking its *contradictory,* A does not belong to all C, and combine this with the same major, we shall have as conclusion, B does not belong to all C; which is the *contradictory* of the minor, and in the form *Baroco:* though in the one case as in the other the minor is disproved. The major is *contradictorily* disproved, whether it be the contrary or the contradictory of the conclusion that is taken along with the minor to form the new syllogism; but still the form varies from *Felapton* to *Bocardo.* Aristotle shows farther how the same process applies to the other modes of the First, and to the modes of the Second and Third figures.[b] The new syllogism, obtained by this process of reversal, is always in a different figure from the syllogism reversed. Thus syllogisms in the First figure are reversed by the Second and Third; those in the second, by the First and Third; those in the Third, by the First and Second.[c]

Of this reversing process, one variety is what is called the *Reductio ad Absurdum;* in which the conclusion is reversed by taking its contradictory (never its contrary), and then joining this last with one of the premisses, in order to prove the con-

[a] Schol. (ad Analyt. Prior. p. 59, b. 1), p. 190, b. 20, Brandis. Compare the notes of M. Barthélemy St. Hilaire, pp. 55, 242.

[b] Analyt. Prior. II. viii.-x. p. 59, b. 1-p. 61, a. 4.

[c] Ibid. x. p. 61, a. 7-15.

tradictory or contrary of the other premiss.[a] The *Reductio ad Absurdum* is distinguished from the other modes of reversal by these characteristics: (1) That it takes the contradictory, and not the contrary, of the conclusion; (2) That it is destined to meet the case where an opponent declines to admit the conclusion; whereas the other cases of reversion are only intended as confirmatory evidence towards a person who already admits the conclusion; (3) That it does not appeal to or require any concession on the part of the opponent; for if he declines to admit the conclusion, you presume, as a matter of course, that he must adhere to the contradictory of the conclusion; and you therefore take this contradictory for granted (without asking his concurrence) as one of the bases of a new syllogism; (4) That it presumes as follows:—When, by the contradictory of the conclusion joined with one of the premisses, you have demonstrated the opposite of the other premiss, the original conclusion itself is shown to be beyond all impeachment on the score of form, *i.e.* beyond impeachment by any one who admits the premisses. You assume to be true, for the occasion, the very proposition which you mean finally to prove false; your purpose in the new syllogism is, not to demonstrate the original conclusion, but to prove it to be true by demonstrating its contradictory to be false.

By the *Reductio ad Absurdum* you can in all the three figures demonstrate all the four varieties of conclusion, universal and particular, affirmative and negative; with the single exception, that you cannot by this method demonstrate in the First figure the Universal Affirmative.[c] With this exception, every true conclusion admits of being demonstrated by either of the two ways, either directly and ostensively, or by reduction to the impossible.[d]

In the Second and Third figures, though not in the First, it is possible to obtain conclusions even from two premisses which are contradictory or contrary to each other; but the conclusion will, as a matter of course, be a self-contradictory one. Thus if in the Second figure you have the two premisses—All Science is good; No Science is good—you get the conclusion (in *Camestres*), No Science is Science. In opposed propositions,

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[a] Analyt. Prior. II. xi. p. 61, a. 18, seq.

[b] Ibid. p. 62, a. 11: *φανερὸν οὖν ὅτι οὐ τὸ ἐναντίον, ἀλλὰ τὸ ἀντικείμενον, ὑποθετέον ἐν ἅπασι τοῖς συλλογισμοῖς. οὕτω γὰρ τὸ ἀναγκαῖον ἔσται καὶ τὸ ἀξίωμα ἔνδοξον. εἰ γὰρ κατὰ παντὸς ἡ κατάφασις ἡ ἀπόφασις, δειχθέντος ὅτι οὐχ ἡ ἀπόφασις, ἀνάγκη τὴν κατάφασιν ἀληθεύεσθαι.* See Scholia, p. 190, b. 40, seq., Brand.

[c] Ibid. p. 61, a. 35-p. 62, b. 10; xii. p. 62, a. 21. Alexander, ap. Schol. p. 191, a. 17-36, Brand.

[d] Ibid. xiv. p. 63, b. 12-21.

the same predicate must be affirmed and denied of the same subject in one of the three different forms—All and None, All and Not All, Some and None. This shows why such conclusions cannot be obtained in the First figure; for it is the characteristic of that figure that the middle term must be predicate in one premiss, and subject in the other.[a] In dialectic discussion it will hardly be possible to get contrary or contradictory premisses conceded by the adversary immediately after each other, because he will be sure to perceive the contradiction: you must mask your purpose by asking the two questions not in immediate succession, but by introducing other questions between the two, or by other indirect means as suggested in the Topica.[b]

Aristotle now passes to certain general heads of Fallacy, or general liabilities to Error, with which the syllogizing process is beset. What the reasoner undertakes is, to demonstrate the conclusion before him, and to demonstrate it in the natural and appropriate way; that is, from premisses both more evident in themselves and logically prior to the conclusion. Whenever he fails thus to demonstrate, there is error of some kind; but he may err in several ways: (1) He may produce a defective or informal syllogism; (2) His premisses may be more unknowable than his conclusion, or equally unknowable; (3) His premisses, instead of being logically prior to the conclusion, may be logically posterior to it.[c]

Distinct from all these three, however, Aristotle singles out and dwells upon another mode of error, which he calls *Petitio Principii*. Some truths, the *principia*, are by nature knowable through or in themselves, others are knowable only through other things. If you confound this distinction, and ask or assume something of the latter class as if it belonged to the former, you commit a *Petitio Principii*. You may commit it either by assuming at once that which ought to be demonstrated, or by assuming, as if it were a *principium*, something else among those matters which in natural propriety would be demonstrated

[a] Analyt. Prior. II. xv. p. 63, b. 22-p. 64, a. 32. Aristotle here declares *Subcontraries* (as they were later called),—Some men are wise, Some men are not wise,—to be opposed only in expression or verbally (κατὰ τὴν λέξιν μόνον).

[b] Ibid. II. xv. p. 64, a. 33-37. See Topica, VIII. i. p. 155, a. 26; Julius Pacius, p. 372, note. In the Topica, Aristotle suggests modes of concealing the purpose of the questioner and driving the adversary to contradict himself: ἐν δὲ τοῖς Τοπικοῖς παραδίδωσι μεθόδους τῶν κρύψεων δι' ἃς τοῦτο δοθήσεται (Schol. p. 192, a. 18, Br.). Compare also Analyt. Prior. II. xix. p. 66, a. 33.

[c] Ibid. II. xvi. p. 64, b. 30-35: καὶ γὰρ εἰ ὅλως μὴ συλλογίζεται, καὶ εἰ δι' ἀγνωστοτέρων ἢ ὁμοίως ἀγνώστων, καὶ εἰ διὰ τῶν ὑστέρων τὸ πρότερον· ἡ γὰρ ἀπόδειξις ἐκ πιστοτέρων τε καὶ προτέρων ἐστίν. . . . τὰ μὲν δι' αὑτῶν πέφυκε γνωρίζεσθαι, τὰ δὲ δι' ἄλλων.

by means of a *principium*. Thus, there is (let us suppose) a natural propriety that C shall be demonstrated through A; but you, overlooking this, demonstrate B through C, and A through B. By thus inverting the legitimate order, you do what is tantamount to demonstrating A through itself; for your demonstration will not hold unless you assume A at the beginning, in order to arrive at C. This is a mistake made not unfrequently, and especially by some who define parallel lines; for they give a definition which cannot be understood unless parallel lines be presupposed.[a]

When the problem is such, that it is uncertain whether A can be predicated either of C or of B, if you then assume that A is predicable of B, you may perhaps not commit *Petitio Principii*, but you certainly fail in demonstrating the problem; for no demonstration will hold where the premiss is equally uncertain with the conclusion. But if, besides, the case be such, that B is identical with C, that is, either co-extensive and reciprocally convertible with C, or related to C as genus or species,—in either of these cases you commit *Petitio Principii* by assuming that A may be predicated of B.[b] For seeing that B reciprocates with C, you might just as well demonstrate that A is predicable of B, because it is predicable of C; that is, you might demonstrate the major premiss by means of the minor and the conclusion, as well as you can demonstrate the conclusion by means of the major and the minor premiss. If you cannot so demonstrate the major premiss, this is not because the structure of the syllogism forbids it, but because the predicate of the major premiss is more extensive than the subject thereof. If it be co-extensive and convertible with the subject, we shall have a circular proof of three propositions in which each may be alternately premiss and conclusion. The like will be the case, if the *Petitio Principii* is in the minor premiss and not in the major. In the First syllogistic figure it may be in either of the premisses; in the Second figure it can only be in the minor premiss, and that only in one mode (*Camestres*) of the figure.[c]

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[a] Analyt. Prior. II. xvi. p. 64, b. 33-p. 65, a. 9. *Petere principium* is, in the phrase of Aristotle, not *τὴν ἀρχὴν αἰτεῖσθαι*, but *τὸ ἐν ἀρχῇ αἰτεῖσθαι*, or *τὸ ἐξ ἀρχῆς αἰτεῖσθαι* (xvi. p. 64, b. 28, 34).

[b] Ibid. p. 65, a. 1-10.

[c] Ibid. p. 65, a. 10: *εἰ οὖν τις, ἀδήλου ὄντος ὅτι τὸ Α ὑπάρχει τῷ Γ, ὁμοίως δὲ καὶ ὅτι τῷ Β, αἰτοῖτο τῷ Β ὑπάρχειν τὸ Α, οὔπω δῆλον εἰ τὸ ἐν ἀρχῇ αἰτεῖται, ἀλλ' ὅτι οὐκ ἀποδείκνυσι, δῆλον· οὐ λὰρ ἀρχὴ ἀποδείξεως τὸ ὁμοίως ἄδηλον. εἰ μέντοι τὸ Β πρὸς τὸ Γ οὕτως ἔχει ὥστε ταὐτὸν εἶναι, ἢ δῆλον ὅτι ἀντιστρέφουσιν, ἢ ὑπάρχει θάτερον θατέρῳ, τὸ ἐν ἀρχῇ αἰτεῖται. καὶ γὰρ ἄν, ὅτι τῷ Β τὸ Α ὑπάρχει, δι' ἐκείνων δεικνύοι εἰ ἀντιστρέφοι. νῦν δὲ τοῦτο κωλύει, ἀλλ' οὐχ ὁ τρόπος. εἰ δὲ τοῦτο ποιοῖ, τὸ εἰρημένον ἂν ποιοῖ καὶ ἀντιστρέφοι ὡς διὰ τριῶν.*

This chapter, in which Aristotle declares the nature of Petitio Principii, is

The essence of *Petitio Principii* consists in this, that you exhibit as true *per se* that which is not really true *per se*.[a] You may commit this fault either in Demonstration, when you assume for true what is not really true, or in Dialectic, when you assume as probable and conformable to authoritative opinion what is not really so.

We must be careful to note, that when Aristotle speaks of a *principium* as knowable in itself, or true in itself, he does not mean that it is innate, or that it starts up in the mind ready made without any gradual building up or preparation. What he means is, that it is not demonstrable deductively from anything else prior or more knowable by nature than itself. He declares (as we shall see) that *principia* are acquired, and mainly by Induction.

Next to *Petitio Principii*, Aristotle indicates another fallacious or erroneous procedure in dialectic debate; misconception or

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obscure and difficult to follow. It has been explained at some length, first by Philoponus in the Scholia (p. 192, a. 35, b. 24), afterwards by Julius Pacius (p. 376, whose explanation is followed by M. B. St. Hilaire, p. 288), and by Waitz, (I. p. 514). But the translation and comment given by Mr. Poste appear to me the best: "Assuming the conclusion to be affirmative, let us examine a syllogism in Barbara:—

All B is A.
All C is B.
∴ All C is A.

And let us first suppose that the major premiss is a Petitio Principii; *i.e.* that the proposition *All B is A* is identical with the proposition *All C is A*. This can only be because the terms B and C are identical. Next, let us suppose that the minor premiss is a Petitio Principii: *i.e.* that the proposition *All C is B* is identical with the proposition *All C is A*. This can only be because B and A are identical. The identity of the terms is, their convertibility or their sequence (ὑπάρχει, ἕπεται). This however requires some limitation; for as the major is always predicated (ὑπάρχει, ἕπεται) of the middle, and the middle of the minor, if this were enough to constitute Petitio Principii, every syllogism with a problematical premiss would be a Petitio Principii." (See the Appendix A, pp. 178-183, attached to Mr. Poste's edition of Aristotle's Sophistici Elenchi.)

Compare, about Petitio Principii, Aristot. Topic. VIII. xiii. p. 162, b. 34, in which passage Aristotle gives to the fallacy called Petitio Principii a still larger sweep than what he assigns to it in the Analytica Priora. Mr. Poste's remark is perfectly just, that according to the above passage in the Analytica, every syllogism with a problematical (*i.e.* real as opposed to verbal) premiss would be a Petitio Principii; that is, all real deductive reasoning, in the syllogistic form, would be a Petitio Principii. To this we may add, that, from the passage above referred to in the Topica, all inductive reasoning also (reasoning from parts to whole) would involve Petitio Principii.

Mr. Poste's explanation of this difficult passage brings into view the original and valuable exposition made by Mr. John Stuart Mill of the Functions and Logical Value of the Syllogism.—System of Logic, Book II. ch. iii. sect. 2:—"It must be granted, that in every syllogism, considered as an argument to prove the conclusion, there is a Petitio Principii," &c.

Petitio Principii, if ranked among the Fallacies, can hardly be extended beyond the first of the five distinct varieties enumerated in the Topica, VIII. xiii.

[a] Analyt. Prior. II. xvi. p. 65, a. 23-27: τὸ γὰρ ἐξ ἀρχῆς τί δύναται, εἴρηται ἡμῖν, ὅτι τὸ δι' αὑτοῦ δεικνύναι τὸ μὴ δι' αὑτοῦ δῆλον.—τοῦτο δ' ἔστι, τὸ μὴ δεικνύναι.

The meaning of some lines in this chapter (p. 65, a. 17-18) is to me very obscure, after all the explanations of commentators.

[b] Ibid. p. 65, a. 35; Topic. VIII. xiii. p. 162, b. 31.

misstatement of the real grounds on which a conclusion rests—*Non per Hoc*. You may impugn the thesis (set up by the respondent) directly, by proving syllogistically its contrary or contradictory; or you may also impugn it indirectly by *Reductio ad Absurdum; i.e.* you prove by syllogism some absurd conclusion, which you contend to be necessarily true, if the thesis is admitted. Suppose you impugn it in the first method, or directly, by a syllogism containing only two premisses and a conclusion: *Non per Hoc* is inapplicable here, for if either premiss is disallowed, the conclusion is unproved; the respondent cannot meet you except by questioning one or both of the premisses of your impugning syllogism.[a] But if you proceed by the second method or indirectly, *Non per Hoc* may become applicable; for there may then be more than two premisses, and he may, while granting that the absurd conclusion is correctly made out, contend that the truth or falsehood of his thesis is noway implicated in it. He declares (in Aristotle's phrase) that the absurdity or falsehood just made out does not follow as a consequence from his thesis, but from other premisses independent thereof; that it would stand equally proved, even though his thesis were withdrawn.[b] In establishing the falsehood or absurdity you must take care that it shall be one implicated with or dependent upon his thesis. It is this last condition that he (the respondent) affirms to be wanting.[c]

Aristotle tells us that this was a precaution which the defender of a thesis was obliged often to employ in dialectic debate, in order to guard against abuse or misapplication of *Reductio ad Absurdum* on the part of opponents, who (it appears) sometimes

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[a] Analyt. Prior. II. xvii. p. 65, b. 4: *ὅταν ἀναιρέθῃ τι δεικτικῶς διὰ τῶν* A, B, Γ, &c.; xviii. 66, a. 17: *ἡ γάρ ἐκ τῶν δύο προτάσεων ἢ ἐκ πλειόνων πᾶς ἐστὶ συλλογισμός· εἰ μὲν οὖν ἐκ τῶν δύο, τούτων ἀνάγκη τὴν μὲν ἑτέραν ἢ καὶ ἀμφοτέρας εἶναι ψευδεῖς·* &c. Whoever would understand this difficult chapter xvii., will do well to study it with the notes of Julius Pacius (p. 360), and also the valuable exposition of Mr. Poste, who has extracted and illustrated it in Appendix B. (p. 190) of the notes to his edition of the Sophistici Elenchi. The six illustrative diagrams given by Julius Pacius afford great help, though the two first of them appear to me incorrectly printed, as to the brackets connecting the different propositions.

[b] Ibid. II. xvii. p. 65, a. 38, b. 14, p. 66, a. 2, 7: *τὸ μὴ παρὰ τοῦτο συμβαίνειν τὸ ψεῦδος—τοῦ μὴ παρὰ τὴν θέσιν εἶναι τὸ ψεῦδος—οὐ παρὰ τὴν θέσιν συμβαίνει τὸ ψεῦδος—οὐκ ἂν εἴη παρὰ τὴν θέσιν.*

Instead of the preposition *παρά*, Aristotle on two occasions employs *διά—οὕτω γὰρ ἔσται διὰ τὴν ὑπόθεσιν*—p. 65, b. 33, p. 66, a. 3.

The preposition *παρά*, with acc. case, means *on account of*, *owing to*, &c. See Matthiæ and Kühner's Grammars, and the passage of Thucydides i. 141; *καὶ ἕκαστος οὐ παρὰ τὴν ἑαυτοῦ ἀμέγειαν οἴεται βλάψειν, μέλειν δέ τινι καὶ ἄλλῳ ὑπὲρ ἑαυτοῦ τι προϊδεῖν*, &c., which I transcribe partly on account of Dr. Arnold's note, who says about *παρὰ* here:—"This is exactly expressed in vulgar English, *all along of* his own neglect, *i.e.* owing to his own neglect."

[c] Ibid. II. xvii. p. 65, b. 33: *δεῖ πρὸς τοὺς ἐξ ἀρχῆς ὅρους συνάπτειν τὸ ἀδύνατον· οὕτω γὰρ ἔσται διὰ τὴν ὑπόθεσιν.*

took credit for success, when they had introduced and demonstrated some absurd conclusion that had little or no connection with the thesis.[a] But even when the absurd conclusion is connected with the thesis continuously, by a series of propositions each having a common term with the preceding, in either the ascending or the descending scale, we have here more than three propositions, and the absurd conclusion may perhaps be proved by the other premisses, without involving the thesis. In this case the respondent will meet you with *Non per Hoc;*[b] he will point out that his thesis is not one of the premisses requisite for demonstrating your conclusion, and is therefore not overthrown by the absurdity thereof. Perhaps the thesis may be false, but you have not shown it to be so, since it is not among the premisses necessary for proving your *absurdum.* An *absurdum* may sometimes admit of being demonstrated by several lines of premisses,[c] each involving distinct falsehood. Every false conclusion implies falsity in one or more syllogistic or prosyllogistic premisses that have preceded it, and is *owing to* or occasioned by this first falsehood.[d]

In impugning the thesis and in extracting from your opponent the proper concessions to enable you to do so, you will take care to put the interrogations in such form and order as will best disguise the final conclusion which you aim at establishing. If you intend to arrive at it through preliminary syllogisms (prosyllogisms), you will ask assent to the necessary premisses in a confused or inverted order, and will refrain from enunciating at once the conclusion from any of them. Suppose that you wish to end by showing that A may be predicated of F, and suppose that there must be intervening steps through B, C, D, E. You will not put the questions in this regular order, but will first ask him to grant that A may be predicated

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[a] Analyt. Prior. II. xvii. p. 65, a. 38: *ὃ πολλάκις ἐν τοῖς λόγοις εἰώθαμεν λέγειν,* &c. That the *Reductio ad Absurdum* was sometimes made to turn upon matters wholly irrelevant, we may see from the illustration cited by Aristotle, p. 65, b. 17.

[b] In this chapter of the Analytica, Aristotle designates the present fallacy by the title, *Non per Hoc, οὐ παρὰ τοῦτο— οὐ παρά τὴν θέσιν συμβαίνει τὸ χεῦδος.* He makes express reference to the Topica (*i.e.* to the fifth chapter of Sophist. Elenchi, which he regards as part of the Topica), where the same fallacy is designated by a different title, *Non Causa pro Causâ, τὸ ἀναίτιον ὡς αἴτιον τιθέναι.* We see plainly that this chapter of the Anal. Priora was composed later than the fifth chapter of Soph. El.; whether this is true of the two treatises as wholes is not so certain. I think it probable that the change of designation for the same fallacy was deliberately adopted. It is an improvement to dismiss the vague term Cause.

[c] Ibid. II. xvii. p. 66, a. 11: *ἐπεὶ ταὐτό γε ψεῦδος συμβαίνειν διὰ πλειόνων ὑποθέσεων οὐδὲν ἴσως ἄτοπον, οἷον τὰς παραλλήλους συμπίπτειν,* &c.

[d] Ibid. II. xviii. p. 66, a. 16-24: *ὁ δὲ ψευδὴς λόγος γίνεται παρὰ τὸ πρῶτον ψεῦδος,* &c.

of B; next, that D may be predicated of E; afterwards, that B may be predicated of C, &c. You will thus try to obtain all the concessions requisite for your final conclusion, before he perceives your drift. If you can carry your point by only one syllogism, and have only one middle term to get conceded, you will do well to put the middle term first in your questions. This is the best way to conceal your purpose from the respondent.[a]

It will be his business to see that he is not thus tripped up in the syllogistic process.[b] If you ask the questions in the order above indicated, without enunciating your preliminary conclusions, he must take care not to concede the same term twice, either as predicate, or as subject, or as both; for you can arrive at no conclusion unless he grants you a middle term; and no term can be employed as middle, unless it be repeated twice. Knowing the conditions of a conclusion in each of the three figures, he will avoid making such concessions as will empower you to conclude in any one of them.[c] If the thesis which he defends is affirmative, the *elenchus* by which you impugn it must be a negative; so that he will be careful not to concede the premisses for a negative conclusion. If his thesis be negative, your purpose will require you to meet him by an affirmative; accordingly he must avoid granting you any sufficient premisses for an affirmative conclusion. He may thus make it impossible for you to prove syllogistically the contrary or contradictory of his thesis; and it is in proving this that the *elenchus* or refutation consists. If he will not grant you any affirmative proposition, nor any universal proposition, you know, by the rules previously laid down, that no valid syllogism can be constructed; since nothing can be inferred either from two premisses both negative, or from two premisses both particular.[d]

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[a] Analyt. Prior. II. xix. p. 66, a. 33-b. 3: *χρὴ δ' ὅπερ φυλάττεσθαι παραγγέλλομεν ἀποκρινομένους, αὐτοὺς ἐπιχειροῦντας πειρᾶσθαι λανθάνειν.* — *κἂν δι' ἑνὸς μέσου γίνηται ὁ συλλογισμός, ἀπὸ τοῦ μέσου ἄρχεσθαι· μάλιστα γὰρ ἂν οὕτω λάνθανοι τὸν ἀποκρινόμενον.* See the explanation of Pacius, p. 385. Since the middle term does not appear in the conclusion, the respondent is less likely to be prepared for the conclusion that you want to establish. To put the middle term first, in enunciating the Syllogism, is regarded by Aristotle as a perverted and embarrassing order, yet it is the received practice among modern logicians.

[b] Analyt. Prior. II. xix. p. 66, a. 25-32: *πρὸς δὲ τὸ μὴ κατασυλλογίζεσθαι παρατηρητέον, ὅταν ἄνευ τῶν συμπερασμάτων ἐρωτᾷ τὸν λόγον,* &c.

Waitz (p. 520) explains *κατασυλλογίζεσθαι*, "disputationum et interrogationum laqueis aliquem irretire." This is, I think, more correct than the distinction which M. Barthélemy St. Hilaire seeks to draw, "entre le Catasyllogisme et la Réfutation," in the valuable notes to his translation of the Analytica Priora, p. 303.

[c] Ibid. II. xix. p. 66, a. 25-32.

[d] Ibid. xx. p. 66, b. 4-17. The reader will observe how completely this advice given by Aristotle is shaped for the purpose of obtaining victory in the argument

We have already seen that error may arise by wrong enunciation or arrangement of the terms of a syllogism, that is, defects in its form; but sometimes also, even when the form is correct, error may arise from wrong belief as to the matters affirmed or denied.[a] Thus the same predicate may belong, immediately and essentially, alike to several distinct subjects; but you may believe (what is the truth) that it belongs to one of them, and you may at the same time believe (erroneously) that it does not belong to another. Suppose that A is predicable essentially both of B and C, and that A, B, and C, are all predicable essentially of D. You may know that A is predicable of all B, and that B is predicable of all D; but you may at the same time believe (erroneously) that A is not predicable of any C, and that C is predicable of all D. Under this state of knowledge and belief, you may construct two valid syllogisms; the first (in *Barbara*, with B for its middle term) proving that A belongs to *all* D; the second (in *Celarent*, with C for its middle term) proving that A belongs to *no* D. The case will be the same, even if all the terms taken belong to the same ascending or descending logical series. Here, then, you *know* one proposition; yet you *believe* the proposition contrary to it.[b] How can such a mental condition be explained? It would, indeed, be an impossibility, if the middle term of the two syllogisms were the same, and if the premisses of the one syllogism thus contradicted directly and in terms, the premisses of the other: should that happen, you cannot know one side of the alternative and believe the other. But if the middle term be different, so that the contradiction between the premisses of the one syllogism and those of the other, is not direct, there is no impossibility. Thus, you know that A is predicable of all B, and B of all D; while you believe at the same time that A is predicable of *no* C, and C of *all* D; the middle term being in one syllogism B, in the other, C.[c] This last form of error is analogous to what often occurs in respect to our knowledge of particulars. You know that A belongs to all B, and B to all C; you know, therefore, that A belongs to all C. Yet you may

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and how he leaves out of consideration both the truth of what the opponent asks to be conceded, and the belief entertained by the defendant. This is exactly the procedure which he himself makes a ground of contemptuous reproach against the Sophists.

[a] Analyt. Prior. II. xxi. p. 66, b. 18: *συμβαίνει δ' ἐνίοτε, καθάπερ ἐν τῇ θέσει τῶν ὅρων ἀπατώμεθα, καὶ κατὰ τὴν ὑπόληψιν γίνεσθαι τὴν ἀπάτην.*

The vague and general way in which Aristotle uses the term *ὑπόληψις*, seems to be best rendered by our word *belief*. See Trendelenburg ad Aristot. De Animâ, p. 469; Biese, Philos. des Aristot. i. p. 211.

[b] Ibid. II. xxi. p. 66, b. 33: *ὥστε ὅ πως ἐπίσταται, τοῦτο ὅλως ἀξιοῖ μὴ ὑπολαμβάνειν· ὅπερ ἀδύνατον.*

[c] Ibid. II. xxi. p. 67, a. 5-8.

perhaps be ignorant of the existence of C. Suppose A to denote equal to two right angles; B, to be the triangle generally; C, a particular visible triangle. You know A B the universal proposition; yet you may at the same time believe that C does not exist; and thus it may happen that you know, and do not know, the same thing at the same time. For, in truth, the knowledge, that every triangle has its three angles equal to two right angles, is not (as a mental fact) simple and absolute, but has two distinct aspects; one as concerns the universal, the other as concerns the several particulars. Now, assuming the case above imagined, you possess the knowledge in the first of these two aspects, but not in the second; so that the apparent contrariety between knowledge and no knowledge is not real.[a] And in this sense the doctrine of Plato in the Menon is partially true—that learning is reminiscence. We can never know beforehand particular cases *per se;* but in proportion as we extend our induction to each case successively, we, as it were, recognize that, which we knew beforehand as a general truth, to be realized in each. Thus when we ascertain the given figure before us to be a triangle, we know immediately that its three angles are equal to two right angles.[b]

We thus, by help of the universal, acquire a theoretical knowledge of particulars, but we do not know them by the special observation properly belonging to each particular case: so that we may err in respect to them without any positive contrariety between our cognition and our error; since what we know is the universal, while what we err in is the particular. We may even know that A is predicable of all B, and that B is predicable of all C; and yet we may believe that A is not predicable of C. We may know that every mule is barren, and that the animal before us is a mule, yet still we may believe her to be in foal; for perhaps we may never have combined in our minds the particular case along with the universal proposition.[c] *A fortiori,* therefore, we may make the like mistake, if we know the universal only, and do not know the particular. And this is perfectly possible. For take any one of the visible particular instances, even one which we have already inspected, so soon as it is out of sight we do not know it by actual and present

[a] Analyt. Prior. II. xxi. p. 67, a. 19: *οὕτω μὲν οὖν ὡς τῇ καθόλου οἶδε τὸ Γ ὅτι δύο ὀρθαί, ὡς δὲ τῇ καθ' ἕκαστον οὐκ οἶδεν, ὥστ' οὐχ ἕξει τὰς ἐναντίας* (sc. *ἐπιστήμας*).

[b] Ibid. a. 22: *οὐδαμοῦ γὰρ συμβαίνει προεπίστασθαι τὸ καθ' ἕκαστον, ἀλλ' ἅμα τῇ ἐπαγωγῇ λαμβάνειν τὴν τῶν κατὰ μέρος ἐπιστήμην ὥσπερ ἀναγνωρίζοντας,* &c. Cf. Anal. Post. I. ii. p. 71, b. 9, seq.; Plato, Menon, pp. 81-82.

[c] Ibid. II. xxi. p. 67, a. 36: *οὐ γὰρ ἐπίσταται ὅτι τὸ Α τῷ Γ, μὴ συνθεωρῶν τὸ καθ' ἑκάτερον.*

cognition; we only know it, partly from the remembrance of past special inspection, partly from the universal under which it falls.[a] We may know in one, or other, or all, of these three distinct ways: either by the universal; or specially (as remembered): or by combination of both—actual and present cognition, that is, by the application of a foreknown generality to a case submitted to our senses. And as we may know in each of these three ways, so we may also err or be deceived in each of the same three ways.[b] It is therefore quite possible that we may know, and that we may err or be deceived about the same thing, and that, too, without any contrariety. This is what happens when we know both the two premisses of the syllogism, but have never reflected on them before, nor brought them into conjunction in our minds. When we believe that the mule before us is in foal, we are destitute of the actual knowledge; yet our erroneous belief is not for that reason contrary to knowledge; for an erroneous belief, contrary to the universal proposition, must be represented by a counter-syllogism.[c]

It is impossible, however, for a man to believe that one contrary is predicable of its contrary, or that one contrary is identical with its contrary, essentially and as an universal proposition; though he may believe that it is so by accident (*i.e.* in some particular case, by reason of the peculiarities of that

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[a] Analyt. Prior. II. xxi. p. 67, a. 39: *οὐδὲν γὰρ τῶν αἰσθητῶν ἔξω τῆς αἰσθήσεως γενόμενον ἴσμεν, οὐδ' ἂν ᾐσθημένοι τυγχάνωμεν, εἰ μὴ ὡς τῷ καθόλου καὶ τῷ ἔχειν τὴν οἰκείαν ἐπιστημην, ἀλλ' οὐχ ὡς τῷ ἐνεργεῖν.*

Complete cognition (*τὸ ἐνεργεῖν*, according to the view here set forth) consists of one mental act corresponding to the major premiss; another corresponding to the minor; and a third including both the two in conscious juxta-position. The third implies both the first and the second; but the first and the second do not necessarily imply the third, nor does either of them imply the other; though a person cognizant of the first is *in a certain way, and to a certain extent*, cognizant of *all* the particulars to which the second applies. Thus the person who knows Ontology (the most universal of all sciences, *τοῦ ὄντος ᾗ ὄν*), knows *in a certain way* all *scibilia*. Metaphys. A., p. 982, a. 21: *τούτων δὲ τὸ μὲν πάντα ἐπίστασθαι τῷ μάλιστα ἔχοντι τὴν καθόλου ἐπιστήμην ἀναγκαῖον ὑπάρχειν· οὗτος γὰρ οἶδέ πως πάντα τὰ ὑποκείμενα.* Ib. a. 8: *ὑπολαμβάνομεν δὴ πρῶτον μὲν ἐπίστασθαι πάντα τὸν σοφὸν ὡς ἐνδέχεται, μὴ καθ' ἕκαστον ἔχοντα ἐπιστήμην αὐτῶν.* See the Scholia of Alexander on these passages, pp. 525, 526, Brandis; also Aristot. Analyt. Post. I. xxiv. p. 86, a. 25; Physica, VII. p. 247, a. 5. Bonitz observes justly (Comm. ad. Metaphys. p. 41) as to the doctrine of Aristotle: "Scientia et ars versatur in notionibus universalibus, solutis ac liberis à conceptu singularum rerum; ideoque, *etsi orta est à principio et experientiâ*, tradi tamen etiam iis potest qui careant experientiâ."

[b] Analyt. Prior. II. xxi. p. 67, b. 3: *τὸ γὰρ ἐπίστασθαι λέγεται τριχῶς, ἢ ὡς τῇ καθόλου, ἢ ὡς τῇ οἰκείᾳ, ἢ ὡς τῷ ἐνεργεῖν· ὥστε καὶ τὸ ἠπατῆσθαι τοσαυταχῶς.*

[c] Ibid. b. 5: *οὐδὲν οὖν κωλύει καὶ εἰδέναι καὶ ἠπατῆσθαι περὶ αὐτό, πλὴν οὐκ ἐναντίως. ὅπερ συμβαίνει καὶ τῷ καθ' ἑκατέραν εἰδότι τὴν πρότασιν καὶ μὴ ἐπεσκεμμένῳ πρότερον. ὑπολαμβάνων γὰρ κύειν τὴν ἡμίονον οὐκ ἔχει τὴν κατὰ τὸ ἐνεργεῖν ἐπιστήμην, οὐδ' αὖ διά τὴν ὑπόληψιν ἐναντίαν ἀπάτην τῇ ἐπιστήμῃ· συλλογισμὸς γὰρ ἡ ἐναντία ἀπάτη τῇ καθόλου.* About erroneous belief, where a man believes the contrary of a true conclusion, adopting a counter-syllogism, compare Analyt. Post. I. xvi. p. 79, b. 23: *ἄγνοια κατὰ διάθεσιν.*

case). In various ways this last is possible; but this we reserve for fuller examination.[a]

Whenever (Aristotle next goes on to say) the extremes of a syllogism reciprocate or are co-extensive with each other (*i.e.* when the conclusion being affirmative is convertible simply), the middle term must reciprocate or be co-extensive with both.[b] If there be four terms (A, B, C, D), such that A reciprocates with B, and C with D, and if either A or C must necessarily be predicable of every subject; then it follows that either B or D must necessarily also be predicable of every subject. Again, if either A or B must necessarily be predicable of every subject, but never both predicable of the same at once; and if either C or D must be predicable of every subject, but never both predicable of the same at once; then, if A and C reciprocate, B and D will also reciprocate.[c] When A is predicable of all B and all C, but of no other subject besides, and when B is predicable of all C, then A and B must reciprocate with each other, or be co-extensive with each other; that is, B may be predicated of every subject of which A can be predicated, though B cannot be predicated of A itself.[d] Again, when A and B are predicable of all C, and when C reciprocates with B, then A must also be predicable of all B.[e]

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[a] Analyt. Prior. II. xxi. p. 67, b. 23: *ἀλλ' ἴσως ἐκεῖνο ψεῦδος, τὸ ὑπολαβεῖν τινὰ κακῷ εἶναι τὸ ἀγαθῷ εἶναι, εἰ μὴ κατὰ συμβεβηκός· πολλοχῶς γὰρ ἐγχωρεῖ τοῦθ' ὑπολαμβάνειν. ἐπισκεπτέον δὲ τοῦτο βέλτιον.* This distinction is illustrated by what we read in Plato, Republic, v. pp. 478-479. The impossibility of believing that one contrary is identical with its contrary, is maintained by Sokrates in Plato, Theætetus, p. 190, B-D, as a part of the long discussion respecting *ψευδὴς δόξα*: either there is no such thing as *ψευδὴς δόξα*, or a man may know, and not know, the same thing, ibid. p. 196 C. Aristotle has here tried to show in what sense this last-mentioned case is possible.

[b] Ibid. II. xxii. p. 67, b. 27, seq. In this chapter Aristotle introduces us to affirmative universal propositions convertible *simpliciter*; that is, in which the predicate must be understood to be distributed as well as the subject. Here, then, the quantity of the predicate is determined in thought. This is (as Julius Pacius remarks, p. 371) in order to lay down principles for the resolution of Induction into Syllogism, which is to be explained in the next chapter. In these peculiar propositions, the reason urged by Sir W. Hamilton for his favourite precept of verbally indicating the quantity of the predicate, is well founded as a fact: though *he* says that in *all* propositions the quantity of the predicate is understood in thought, which I hold to be incorrect.

We may remark that this recognition by Aristotle of a class of universal affirmative propositions in which predicate and subject reciprocate, contrived in order to force Induction into the syllogistic framework, is at variance with his general view both of reciprocating propositions and of Induction. He tells us (Analyt. Post. I. iii. p. 73, a. 18) that such reciprocating propositions are very rare, which would not be true if they are taken to represent every Induction; and he forbids us emphatically to annex the mark of universality to the predicate; which he has no right to do, if he calls upon us to reason on the predicate as distributed (Analyt. Prior. I. xxvii., p. 43, b. 17; De Interpret. p. 17, b. 14).

[c] Ibid. II. xxii. p. 68, a. 2-15.

[d] Ibid. a. 16-21. *πλὴν αὐτοῦ τοῦ A.* Waitz explains these words in his note (p. 531): yet I do not clearly make them out; and Alexander of Aphrodisias declared them to assert what was erroneous (*ἐσφάλθαι λέγει*, Schol. p. 194, a. 40, Brandis).

[e] Ibid. II. xxii. p. 68, a. 21-25.

Lastly, suppose two pairs of opposites, A and B, C and D; let A be more eligible than B, and D more eligible than C. Then, if A C is more eligible than B D, A will also be more eligible than D. For A is as much worthy of pursuit as B is worthy of avoidance, they being two opposites; the like also respecting C and D. If then A and D are equally worthy of pursuit, B and C are equally worthy of avoidance; for each is equal to each. Accordingly the two together, A C, will be equal to the two together, B D. But this would be contrary to the supposition; since we assumed A to be more eligible than B, and D to be more eligible than C. It will be seen that on this supposition A is more worthy of pursuit than D, and that C is less worthy of avoidance than B; the greater good and the lesser evil being more eligible than the lesser good and the greater evil. Now apply this to a particular case of a lover, so far forth as lover. Let A represent his possession of those qualities which inspire reciprocity of love towards him in the person beloved; B, the absence of those qualities; D, the attainment of actual sexual enjoyment; C, the non-attainment thereof. In this state of circumstances, it is evident that A is more eligible or worthy of preference than D. The being loved is a greater object of desire to the lover *qua* lover than sexual gratification; it is the real end or purpose to which love aspires; and sexual gratification is either not at all the purpose, or at best only subordinate and accessory. The like is the case with our other appetites and pursuits.[a]

Such is the relation of the terms of a syllogism in regard to reciprocation and antithesis. Let it next be understood that the canons hitherto laid down belong not merely to demonstrative and dialectic syllogisms, but to rhetorical and other syllogisms also; all of which must be constructed in one or other of the three figures. In fact, every case of belief on evidence, whatever be the method followed, must be tested by these same canons. We believe everything either through Syllogism or upon Induction.[b]

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[a] Analyt. Prior. II. xxii. p. 68, a. 25-b. 17. Aristotle may be right in the conclusion which he here emphatically asserts; but I am surprised that he should consider it to be proved by the reasoning that precedes.

It is probable that Aristotle here understood the object of ἔρως (as it is conceived through most part of the Symposion of Plato) to be a beautiful youth: (see Plato, Sympos. pp. 218-222; also Xenophon, Sympos. c. viii., Hiero, c. xi. 11, Memorab. I. ii. 29, 30). Yet this we must say—what the two women said when they informed Simætha of the faithlessness of Delphis (Theokrit. Id. ii. 149)—

Κῆπέ μοι ἄλλα τε πολλά, καὶ ὡς ἄρα Δέλφις ἔραται·
Κἤτε μιν αὖτε γυναικὸς ἔχει πόθος, εἴτε καὶ ἀνδρός,
Οὐκ ἔφατ' ἀτρεκὲς ἴδμεν.

[b] Ibid. II. xxiii. p. 68, b. 13: ἅπαντα γὰρ πιστεύομεν ἢ διὰ συλλογισμοῦ ἢ ἐξ ἐπαγωγῆς.

Though Aristotle might seem, even here, to have emphatically contrasted Syllogism with Induction as a ground of belief, he proceeds forthwith to indicate a peculiar form of Syllogism which may be constructed out of Induction. Induction, and the Syllogism from or out of Induction (he says) is a process in which we invert the order of the terms. Instead of concluding from the major through the middle to the minor (*i.e.* concluding that the major is predicable of the minor), we now begin from the minor and conclude from thence through the middle to the major (*i.e.* we conclude that the major is predicable of the middle).[a] In Syllogism as hitherto described, we concluded that A the major was predicable of C the minor, through the middle B; in the Syllogism from Induction we begin by affirming that A the major is predicable of C the minor; next, we affirm that B the middle is also predicable of C the minor. The two premisses, standing thus, correspond to the Third figure of the Syllogism (as explained in the preceding pages) and would not therefore by themselves justify anything more than a *particular* affirmative conclusion. But we reinforce them by introducing an extraneous assumption:—That the minor C is co-extensive with the middle B, and comprises the entire aggregate of individuals of which B is the universal or class-term. By reason of this assumption the minor proposition becomes convertible simply, and we are enabled to infer (according to the last preceding chapter) an universal affirmative conclusion, that the major term A is predicable of the middle term B. Thus, let A (the major term) mean the class-term, long-lived; let B (the middle term) mean the class-term, bile-less, or the having no bile; let C (the minor term) mean the individual animals—man, horse, mule, &c., coming under the class-term B, bile-less.[b] We are supposed to

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[a] Analyt. Prior. II. xxiii. p. 68, b. 15: *ἐπαγωγὴ μὲν οὖν ἐστὶ καὶ ὁ ἐξ ἐπαγωγῆς συλλογισμὸς τὸ διὰ τοῦ ἑτέρου θάτερον ἄκρον τῷ μέσῳ συλλογίσασθαι· οἷον εἰ τῶν ΑΓ μέσον τὸ Β, διὰ τοῦ Γ δεῖξαι τὸ Α τῷ Β ὑπάρχον· οὕτω γὰρ ποιούμεθα τὰς ἐπαγωγάς.*

Waitz in his note (p. 532) says: "Fit Inductio, cum per minorem terminum demonstratur *medium prædicari de majore.*" This is an erroneous explanation. It should have been: "demonstratur *majorem prædicari de medio.*" Analyt. Prior. II. xxiii. 68, b. 32: *καὶ τρόπον τινὰ ἀντικεῖται ἡ ἐπαγωγὴ τῷ συλλογισμῷ· ὁ μὲν γὰρ διὰ τοῦ μέσου τὸ ἄκρον τῷ τρίτῳ δείκνυσιν, ἡ δὲ διὰ τοῦ τρίτου τὸ ἄκρον τῷ μέσῳ.*

[b] Ibid. II. xxiii. p. 68, b. 18: *οἷον ἔστω τὸ Α μακρόβιον, τὸ δ' ἐφ' ᾧ Β, τὸ χολὴν μὴ ἔχον, ἐφ' ᾧ δὲ Γ, τὸ καθ' ἕκαστον μ α κ ρ ό β ι ο ν, οἷον ἄνθρωπος καὶ ἵππος καὶ ἡμίονος. τῷ δὴ Γ ὅλῳ ὑπάρχει τὸ Α· πᾶν γὰρ τὸ ἄχολον μακρόβιον· ἀλλὰ καὶ τὸ Β, τὸ μὴ ἔχειν χολήν, παντὶ ὑπάρχει τῷ Γ. εἰ οὖν ἀντιστρέφει τὸ Γ τῷ Β καὶ μὴ ὑπερτείνει τὸ μέσον, ἀνάγκη τὸ Α τῷ Β ὑπάρχειν.*

I have transcribed this Greek text as it stands in the editions of Buhle, Bekker, Waitz, and F. Didot. Yet, notwithstanding these high authorities, I venture to contend that it is not wholly correct; that the word *μ α κ ρ ό β ι ο ν*, which I have emphasized, is neither consistent with the context, nor suitable for the point which Aristotle is illustrating. Instead of *μ α κ ρ ό β ι ο ν*, we ought in that place to read

know, or to have ascertained, that A may be predicated of all C; (*i.e.* that all men, horses, mules, &c., are long-lived); we farther

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ἄχολον; and I have given the sense of the passage in my English text as if it did stand *ἄχολον* in that place.

I proceed to justify this change. If we turn back to the edition by Julius Pacius (1584, p. 377) we find the text given as follows after the word *ἡμίονος* (down to that word the text is the same): *τῷ δὴ Γ ὅλῳ ὑπάρχει τὸ Α· πᾶν γὰρ τὸ Γ μακρόβιον· ἀλλὰ καὶ τὸ Β, τὸ μὴ ἔχον χολήν, παντὶ ὑπάρξει τῷ Γ. εἰ οὖν ἀντιστρέφει τὸ Γ τῷ Β, καὶ μὴ ὑπερτείνει τὸ μέσον, ἀνάγκη τὸ Α τῷ Β ὑπάρχειν.* Earlier than Pacius, the edition of Erasmus (Basil. 1550) has the same text in this chapter.

Here it will be seen that in place of the words given in Waitz's text, *πᾶν γὰρ τὸ ἄχολον μακρόβιον*, Pacius gives *πᾶν γὰρ τὸ Γ μακρόβιον*; annexing however to the letter Γ an asterisk referring to the margin, where we find the word *ἄχολον* inserted in small letters, seemingly as a various reading not approved by Pacius. And M. Barthélemy St. Hilaire has accommodated his French translation (p. 328) to the text of Pacius: "Donc A est à C tout entier, car tout C est longève." Boethius in his Latin translation (p. 519) recognizes as his original *πᾶν γὰρ τὸ ἄχολον μακρόβιον*, but he alters the text in the words immediately preceding:—"Ergo *toti B* (instead of *toti C*) inest A, omne enim quod sine cholera est, longævum," &c. (p. 519). The edition of Aldus (Venet. 1495) has the text conformable to the Latin of Boethius: *τῷ δὴ Β ὅλῳ ὑπάρχει τὸ Α· πᾶν γὰρ τὸ ἄχολον μακρόβιον.* Three distinct Latin translations of the 16th century are adapted to the same text, viz., that of Vives and Valentinus (Basil. 1542); that published by the Junta (Venet. 1552); and that of Cyriacus (Basil. 1563). Lastly, the two Greek editions of Sylburg (1587) and Casaubon (Lugduni 1590), have the same text also: *τῷ δὴ Β ὅλῳ ὑπάρχει τὸ Α· πᾶν γὰρ* [*τὸ Γ*] *τὸ ἄχολον μακρόβιον.* Casaubon prints in brackets the words [*τὸ Γ·*] before *τὸ ἄχολον.*

Now it appears to me that the text of Bekker and Waitz (though Waitz gives it without any comment or explanation) is erroneous; neither consisting with itself, nor conforming to the general view enunciated by Aristotle of the Syllogism from Induction. I have cited two distinct versions, each different from this text, as given by the earliest editors; in both the confusion appears to have been felt, and an attempt made to avoid it, though not successfully.

Aristotle's view of the Syllogism from Induction is very clearly explained by M. Barthélemy St. Hilaire in the instructive notes of his translation, pp. 326-328; also in his Preface, p. lvii.:—L'induction n'est au fond qu'un syllogisme dont le mineur et le moyen sont d'extension égale. Du reste, il n'est qu'une seule manière dont le moyen et le mineur puissent être d'égale extension; c'est que le mineur se compose de toutes les parties dont le moyen représente la totalité. D'une part, tous les individus: de l'autre, l'espèce totale qu'ils forment. L'intelligence fait aussitôt équation entre les deux termes égaux."

According to the Aristotelian text, as given both by Pacius and the others, A, the major term, represents *longævum* (long-lived, the class-term or total); B, the middle term, represents *vacans bile* (bile-less, the class-term or total); C, the minor term, represents the aggregate individuals of the class *longævum*, man, horse, mule, &c.

Julius Pacius draws out the Inductive Syllogism, thus:—

1. Omnis homo, equus, asinus, &c., est longævus.
2. Omnis homo, equus, asinus, &c., vacat bile.

   Ergo:

3. Quicquid vacat bile, est longævum.

Convertible into a Syllogism in Barbara:—

1. Omnis, homo, equus, asinus, &c., est longævus.
2. Quicquid vacat bile, est homo, equus, asinus, &c.

   Ergo:

3. Quicquid vacat bile, est longævum.

Here the force of the proof (or the possibility, in this exceptional case, of converting a syllogism in the Third figure into another in *Barbara* of the First figure) depends upon the equation or co-extensiveness (not enunciated in the premisses, but assumed in addition to the premisses) of the minor term C with the middle term B. But I contend that this is *not* the condition peremptorily required, or sufficient for proof, if we suppose C the minor term to represent *omne longævum*. We must understand C the minor term to represent *omne vacans bile*, or *quicquid vacat bile*: and unless we understand this, the proof fails. In other words, *homo, equus, asinus, &c.* (the aggregate of individuals), must be co-extensive with the class-term bile-less or *vacans bile*: but they need not be co-extensive with the class-term long-lived or *longævum*. In the final conclusion, the subject *vacans bile* is distributed; but the predicate *longævum* is not distributed; this

know that B is predicable of all C (*i.e.* that men, horses, mules, &c., belong to the class bile-less). Here, then, we have two premisses in the Third syllogistic figure, which in themselves would warrant us in drawing the particular affirmative conclusion, that A is predicable of *some* B, but no more. Accordingly, Aristotle directs us to supplement these premisses[a] by the extraneous

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latter may include, besides all bile-less animals, any number of other animals, without impeachment of the syllogistic proof.

Such being the case, I think that there is a mistake in the text as given by all the editors, from Pacius down to Bekker and Waitz. What they give, in setting out the terms of the Aristotelian Syllogism from Induction, is; ἔστω τό A μακρόβιον, τό δ' ἐφ' ᾧ B, τὸ χολὴν μὴ ἔχον, ἐφ' ᾧ δὲ Γ, τό καθ' ἕκαστον μακρόβιον, οἷον ἄνθρωπος καὶ ἵππος καὶ ἡμίονος. Instead of which the text ought to run, ἐφ' ᾧ δὲ Γ, τὸ καθ' ἕκαστον ἄχολον, οἷον ἄνθρ. κ. ἵπ. κ. ἡμί. That these last words were the original text, is seen by the words immediately following: τῷ δὴ Γ ὅλῳ ὑπάρχει τὸ A· πᾶν γὰρ τὸ ἄχολον μακρόβιον. For the reason thus assigned (in the particle γάρ) is irrelevant and unmeaning if Γ designates τὸ καθ' ἕκαστον μακρόβιον, while it is pertinent and even indispensable if Γ designates τὸ καθ' ἕκαστον ἄχολον. Pacius (or those whose guidance he followed in his text) appears to have perceived the incongruity of the reason conveyed in the words πᾶν γὰρ τὸ ἄχολον μακρόβιον; for he gives, instead of these words, πᾶν γὰρ τὸ Γ μακρόβιον. In this version the reason is indeed no longer incongruous, but simply useless and unnecessary; for when we are told that A designates the class *longævum*, and that Γ designates the individual *longæva*, we surely require no reason from without to satisfy us that A is predicable of all Γ. The text, as translated by Boethius and others, escapes that particular incongruity, though in another way, but it introduces a version inadmissible on other grounds. Instead of τῷ δὴ Γ ὅλῳ ὑπάρχει τὸ A, πᾶν γὰρ τὸ ἄχολον μακρόβιον, Boethius has τῷ δὴ B ὅλῳ ὑπάρχει τὸ A, πᾶν γὰρ τὸ ἄχολον μακρόβιον. This cannot be accepted, because it enunciates the conclusion of the syllogism as if it were one of the premisses. We must remember that the conclusion of the Aristotelian Syllogism from Induction is, that A is predicable of B, one of the premisses to prove it being that A is predicable of the minor term C. But obviously we cannot admit as one of the premisses the proposition that A may be predicated of B, since this proposition would then be used as premiss to prove itself as conclusion.

If we examine the Aristotelian Inductive Syllogism which is intended to conduct us to the final *probandum*, we shall see that the terms of it are incorrectly set out by Bekker and Waitz, when they give the minor term Γ as designating τὸ καθ' ἕκαστον μακρόβιον. This last is not one of the three terms, nor has it any place in the syllogism. The three terms are:

1. A — major — the class-term or class μακρόβιον—*longævum*.
2. B — middle — the class term or class ἄχολον—bile-less.
3. C — minor — the individual bile-less animals, man, horse, &c.

There is no term in the syllogism corresponding to the individual *longæva* or long-lived animals; this last (I repeat) has no place in the reasoning. We are noway concerned with the totality of long-lived animals; all that the syllogism undertakes to prove is, that in and among that totality all bile-less animals are included; whether there are or are not other long-lived animals besides the bile-less, the syllogism does not pretend to determine. The equation or co-extensiveness required (as described by M. Barthélemy St. Hilaire in his note) is not between the individual long-lived animals and the class, bile-less animals (middle term), but between the aggregate of individual animals known to be bile-less and the class, bile-less animals. The real minor term, therefore, is (not the individual *long-lived* animals, but) the individual *bile-less* animals. The two premisses of the Inductive Syllogism will stand thus:—

Men, Horses, Mules, &c., are long-lived (major).
Men, Horses, Mules, &c., are bile-less (minor).

And, inasmuch as the subject of the minor proposition is co-extensive with the predicate (which, if quantified according to Hamilton's phraseology, would be, *All* bile-less animals), so that the proposition admits of being converted simply,—the middle term will become the subject of the conclusion, All bileless animals are long-lived.

[a] Analyt. Prior. II. xxiii. p. 68, b. 27:

assumption or postulate, that C the minor comprises *all* the individual animals that are bile-less, or all those that correspond to the class-term B; in other words, the assumption, that B the middle does not denote any more individuals than those which are covered by C the minor—that B the middle does not stretch beyond or overpass C the minor.[a] Having the two premisses, and this postulate besides, we acquire the right to conclude that A is predicable of *all* B. But we could not draw that conclusion from the premisses alone, or without the postulate which declares B and C to be co-extensive. The conclusion, then, becomes a particular exemplification of the general doctrine laid down in the last chapter, respecting the reciprocation of extremes and the consequences thereof. We thus see that this very peculiar Syllogism from Induction is (as indeed Aristotle himself remarks) the opposite or antithesis of a genuine Syllogism. It has no proper middle term; the conclusion in which it results is

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δεῖ δὲ νοεῖν τὸ Γ τὸ ἐξ ἁπάντων τῶν καθ' ἕκαστον συγκείμενον· ἡ γὰρ ἐπαγωγὴ διὰ πάντων.

[a] Analyt. Prior. II. xxiii. p. 68, p. 23: *εἰ οὖν ἀντιστρέφει τὸ Γ τῷ B, καὶ μὴ ὑπερτείνει τὸ μέσον, ἀνάγκη τὸ A τῷ B ὑπάρχειν.*

Julius Pacius translates this: "Si igitur convertatur *τὸ* Γ cum B, nec medium excedat, necesse est *τὸ* A *τῷ* B inesse." These Latin words include the same grammatical ambiguity as is found in the Greek original: *medium*, like *τὸ μέσον*, may be either an accusative case governed by *excedat*, or a nominative case preceding *excedat*. The same may be said of the other Latin translations, from Boethius downwards.

But M. Barthélemy St. Hilaire in his French translation, and Sir W. Hamilton in his English translation (Lectures on Logic, Vol. II. iv. p. 358, Appendix), steer clear of this ambiguity. The former says: "Si donc C est réciproque à B, et qu'il ne dépasse pas le moyen, il est nécessaire alors que A soit à B:" to the same purpose, Hamilton, *l. c.* These words are quite plain and unequivocal. Yet I do not think that they convey the meaning of Aristotle. In my judgment, Aristotle meant to say: "If then C reciprocates with B, and if the middle term (B) does not stretch beyond (the minor C), it is necessary that A should be predicable of B." To show that this must be the meaning, we have only to reflect on what C and B respectively designate. It is assumed that C designates the sum of individual bile-less animals; and that B designates the class or class-term bile-less, that is, the totality thereof. Now the sum of individuals included in the minor (C) cannot upon any supposition overpass the totality; but it may very possibly fall short of totality; or (to state the same thing in other words) the totality may possibly surpass the sum of individuals under survey, but it cannot possibly fall short thereof. B is here the limit, and may possibly stretch beyond C; but C cannot stretch beyond B. Hence I contend that the translations, both by M. Barthélemy St. Hilaire and Sir W. Hamilton, take the wrong side in the grammatical alternative admissible under the words *καὶ μὴ ὑπερτείνει τὸ μέσον*. The only doubt that could possibly arise in the case was, whether the aggregate of individuals designated by the minor did, or did not, reach up to the totality designated by the middle term; or (changing the phrase) whether the totality designated by the middle term did, or did not, stretch beyond the aggregate of individuals designated by the minor. Aristotle terminates this doubt by the words: "And if the middle term does *not* stretch beyond (the minor)." Of course the middle term does not stretch beyond, when the terms reciprocate; but when they do not reciprocate, the middle term must be the *more* extensive of the two; it can *never* be the *less* extensive of the two, since the aggregate of individuals cannot possibly exceed totality, though it may fall short thereof.

I have given in the text what I think the true meaning of Aristotle, departing from the translations of M. Barthélemy St. Hilaire and Sir. W. Hamilton.

the first or major proposition, the characteristic feature of which it is to be *immediate*, or not to be demonstrated through a middle term. Aristotle adds that the genuine Syllogism, which demonstrates through a middle term, is *by nature* prior and more effective as to cognition; but that the Syllogism from Induction is *to us* plainer and clearer.[a]

From Induction he proceeds to Example. You here take in (besides the three terms, major, middle, and minor, of the Syllogism) a fourth term; that is, a new particular case analogous to the minor. Your purpose here is to show—not, as in the ordinary Syllogism, that the major term is predicable of the minor, but, as in the Inductive Syllogism—that the major term is predicable of the middle term; and you prove this conclusion, not (as in the Inductive Syllogism) through the minor term, but through the new case or fourth term analogous to the minor.[b] Let A represent evil or mischievous; B, war against neighbours, generally; C, war of Athens against Thebes, an event to come and under deliberation; D, war of Thebes against Phokis, a past event of which the issue is known to have been signally mischievous. You assume as known, first, that A is predicable of D, *i.e.* that the war of Thebes against Phokis has been disastrous; next, that B is predicable both of C and of D, *i.e.* that each of the two wars, of Athens against Thebes, and of Thebes against Phokis, is a war of neighbours against neighbours, or a conterminous war. Now from the premiss that A is predicable of D, along with the premiss that B is predicable of D, you infer that A is predicable of the class B, or of conterminous wars generally; and hence you draw the farther inference, that A is also predicable of C, another particular case under the same class B. The inference here is, in the first instance, from part to whole; and finally, through that whole, from the one part to another part of the same whole. *Induction* includes in its major premiss all the particulars, declaring all of them to be severally subjects of the major as predicate; hence it infers as conclusion, that the major is also predicable of the middle or class-term comprising all these particulars, but comprising no others. *Example* includes not all, but only one or a few particulars; inferring from it or them, first, to the entire

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[a] Analyt. Prior. II. xxiii. p. 68, b. 30-38: ἔστι δ' ὁ τοιοῦτος συλλογισμὸς τῆς πρώτης καὶ ἀμέσου προτάσεως· ὧν μὲν γάρ ἐστι μέσον, διὰ τοῦ μέσου ὁ συλλογισμός, ὧν δὲ μή ἐστι, δι' ἐπαγωγῆς.—φύσει μὲν οὖν πρότερος καὶ γνωριμώτερος ὁ διὰ τοῦ μέσου συλλογισμός, ἡμῖν δ' ἐναργέστερος ὁ διὰ τῆς ἐπαγωγῆς.

[b] Ibid. II. xxiv. p. 68, b. 38: παράδειγμα δ' ἐστὶν ὅταν τῷ μέσῳ τὸ ἄκρον ὑπάρχον δειχθῇ διὰ τοῦ ὁμοίου τῷ τρίτῳ.

class, next, to some new analogous particular belonging to the class.[a]

These chapters respecting Induction and Example are among the most obscure and perplexing in the Aristotelian Analytica. The attempt to throw both Induction and Example into the syllogistic form is alike complicated and unfortunate; moreover, the unsatisfactory reading and diversities in the text, among commentators and translators, show that the reasoning of Aristotle has hitherto been imperfectly apprehended.[b] From some of his phrases, we see that he was aware of the essential antithesis between Induction and Syllogism; yet the syllogistic forms appear to have exercised such fascination over his mind, that he could not be satisfied without trying to find some abnormal form of Syllogism to represent and give validity to Induction. In explaining generally what the Syllogism is, and

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[a] Analyt. Prior. II. xxiv. p. 69, a. 1-19 Julius Pacius (p. 400) notes the unauthorized character of this so-called Paradeigmatic Syllogism, contradicting the rules of the figures laid down by Aristotle, and also the confused manner in which the scope of it is described: first, to infer from a single example to the universal; next, to infer from a single example *through* the universal to another parallel case. To which we may add the confused description in p. 69, a. 17, 18, where τὸ ἄκρον in the first of the two lines signifies the *major* extreme—in the second of the two the *minor* extreme. See Waitz's note, p. 533.

If we turn to ch. xxvii. p. 70, a. 30-34, we shall find Aristotle on a different occasion disallowing altogether this so-called Syllogism from Example.

[b] Sir W. Hamilton (Lectures on Logic, vol. i. p. 319) says justly, that Aristotle has been very brief and unexplicit in his treatment of Induction. Yet the objections that Hamilton makes to Aristotle are very different from those which I should make. In the learned and valuable Appendix to his Lectures (vol. iv. pp. 358-369), he collects various interesting criticisms of logicians respecting Induction as handled by Aristotle. Ramus (in his Scholæ Dialecticæ, VIII. xi.) says very truly:—"Quid vero sit Inductio, perobscure ab Aristotele declaratur; nec ab interpretibus intelligitur, quo modo *syllogismus* per medium concludat majus extremum de minore; *inductio*, majus de medio per minus."

The Inductive Syllogism, as constructed by Aristotle, requires a reciprocating minor premiss. It may, indeed, be cited (as I have already remarked) in support of Hamilton's favourite precept of quantifying the predicate. The predicate of this minor must be assumed as *quantified in thought*, the subject being taken as coextensive therewith. Therefore Hamilton's demand that it shall be *quantified in speech* has really in this case that foundation which he erroneously claims for it in all cases. He complains that Lambert and some other logicians dispense with the necessity of quantifying the predicate of the minor by making it disjunctive; and adds the remarkable statement that "the recent German logicians, Herbart, Twesten, Drobisch, &c., following Lambert, make the Inductive Syllogism a byeword" (p. 366). I agree with them in thinking the attempted transformation of Induction into Syllogism very unfortunate, though my reasons are probably not the same as theirs.

Trendelenburg agrees with those who said that Aristotle's doctrine about the Inductive Syllogism required that the minor should be disjunctively enunciated (Logische Untersuchungen, xiv. p. 175, xvi. pp. 262, 263; also Erläuterungen zu den Elementen der Aristotelischen Logik, ss. 34-36, p. 71). Ueberweg takes a similar view (System der Lokik, sect. 128, p. 367, 3rd ed.). If the Inductive Inference is to be twisted into Syllogism, it seems more naturally to fall into an *hypothetical* syllogism, *e. g.*:—

If this, that, and the other magnet attract iron, all magnets attract iron;
But this, that, and the other magnet do attract iron: *Ergo*, &c.

what Induction is, he informs us that the Syllogism presupposes and rests upon the process of Induction as its postulate. For there can be no valid Syllogism without an universal proposition in one (at least) of the premisses; and he declares, unequivocally, that universal propositions are obtained only through Induction. How Induction operates through the particular facts of sense, remembered, compared, and coalescing into clusters held together by associating similarity, he has also told us; it is thus that Experience, with its universal notions and conjunctions, is obtained. But this important process is radically distinct from that of syllogizing, though it furnishes the basis upon which all syllogizing is built.

The central idea of the Syllogism, as defined by Aristotle, is that of a conclusion following from given premisses by *necessary* sequence;[a] meaning by the term *necessary* thus much and no more—that you cannot grant the premisses, and deny the conclusion, without being inconsistent with yourself, or falling into contradiction. In all the various combinations of propositions, set forth by Aristotle as the different figures and modes of Syllogism, this property of necessary sequence is found. But it is a property which no Induction can ever possess.[b] When Aristotle professes to point out a particular mode of Syllogism to which Induction conforms, he can only do so by falsifying the process of Induction, and by not accurately distinguishing between what is observed and what is inferred. In the case which he takes to illustrate the Inductive Syllogism—the inference from all particular bile-less animals to the whole class bile-less—he assumes that we have ascertained the attribute to belong to *all* the particulars, and that the inductive inference consists in passing from all of them to the class-term; the passage from premisses to conclusion being here necessary, and thus falling under the definition of Syllogism; since, to grant the premisses, and yet to deny the conclusion, involves a contradiction. But this doctrine misconceives what the inductive inference really is. We never can observe *all* the particulars of a class, which is indefinite as to number of particulars, and definite only in respect of the attributes connoted by the class-term. We can only observe *some*

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[a] Alexander intimates that Aristotle enunciated "necessary sequence" as a part of his definition of Syllogism, for the express purpose of distinguishing it from Induction, which is a sequence *not necessary* (Schol. ad Top. p. 253, a. 19, Br.): τὸ δ' ἐξ ἀνάγκης προσκείμενον ἐν τῷ ὅρῳ, τῆς ἐπαγωγῆς χωρίζει τὸν συλλογισμόν· ἔστι μὲν γὰρ καὶ ἐπαγωγὴ λόγος ἐν ᾧ τεθέντων τινῶν ἕτερόν τι τῶν κειμένων συμβαίνει, ἀλλ' οὐκ ἐξ ἀνάγκης·

[b] Alexander (in his Scholia on the Metaphysica, E. i. p. 406. ed. Bonitz) observes truly: ἀλλ' εἰ ἐκ τῆς αἰσθήσεως καὶ τῆς ἐπαγωγῆς πίστις, οὐκ ἔστιν ἀπόδειξις, πρὸς πᾶσαν γὰρ ἐπαγωγὴν δύναταί τις ἐνίστασθαι καὶ μὴ ἐᾷν τὸ καθόλου συμπεραίνειν.

of the particulars, a greater or smaller proportion. Now it is in the transition from these *to* the totality of particulars, that the real inductive inference consists; not in the transition *from* the totality to the class-term which denotes that totality and connotes its determining common attribute. In fact, the distinction between the totality of particulars and the meaning of the class-term, is one not commonly attended to; though it is worthy of note in an analysis of the intellectual process, and is therefore brought to view by Aristotle. But he employs it incorrectly as an intermediate step to slur over the radical distinction between Induction and Syllogism. He subjoins:[a]—"You must conceive the minor term C (in the Inductive Syllogism) as composed of all the particulars; for Induction is through all of them." You may say that Induction is *through* all the particulars, if you distinguish this totality from the class-term, and if you treat the class-term as the ultimate *terminus ad quem*. But the Induction must first travel *to* all the particulars; being forced to take start from a part only, and then to jump onward far enough to cover the indefinite unobserved remainder. This jump is the real Induction; and this can never be brought under the definition of Syllogism; for in the best and most certain Induction the sequence is never a necessary one: you may grant the premisses and deny the conclusion without contradicting yourself.

Aristotle states very clearly:—"We believe everything either through Syllogism, or from Induction."[b] Here, as well as in several other passages, he notes the two processes as essentially distinct. The Syllogism requires in its premisses at least one general proposition; nor does Aristotle conceive the "generalities as the original data:"[c] he derives them from antecedent Induction. The two processes are (as he says) opposite in a certain way; that is, they are complementary halves of the same whole; Induction being the establishment of those universals which are essential for the deductive march of the Syllogism; while the two together make up the entire process of scientific reasoning. But he forgets or relinquishes this antithesis, when he presents to us the Inductive process as a given variety of Syllogism. And the objection to such a doctrine becomes the more manifest,

[a] Analyt. Prior. II. xxiii. p. 68, b. 27: δεῖ δὲ νοεῖν τὸ Γ τὸ ἐξ ἁπάντων τῶν καθ' ἕκαστον συγκείμενον· ἡ γὰρ ἐπαγωγὴ διὰ πάντων. See Professor Bain's 'Inductive Logic,' chap. i. s. 2, where this process is properly criticised.

[b] Ibid. II. xxiii. p. 68, b. 13: ἅπαντα γὰρ πιστεύομεν ἢ διὰ συλλογισμοῦ ἢ ἐξ ἐπαγωγῆς. Here Induction includes Example, though in the next stage he puts the two apart. Compare Anal. Poster. I. i. p. 71, a. 9.

[c] See Mr. John Stuart Mill's System of Logic, Bk. II. ch. iii. s. 4, p. 219, 5th ed.

since in constructing his Inductive Syllogism, he is compelled to admit either that there is no middle term, or that the middle term is subject of the conclusion, in violation of the syllogistic canons.[a]

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[a] Aldrich (Artis Log. Rudim. ch. iii. 9, 2, p. 175) and Archbishop Whately (Elem. of Logic, ch. i. p. 209) agree in treating the argument of Induction as a defective or informal Syllogism: see also to the same purpose Sir. W. Hamilton, Lectures on Logic, vol. i. p. 322. Aldrich treats it as a Syllogism in *Barbara*, with the minor suppressed; but Whately rejects this, because the minor necessary to be supplied is false. He maintains that the premiss suppressed is the major, not the minor. I dissent from both. It appears to me that the opinion which Whately pronounces to be a fallacy is the real truth: "Induction is a distinct kind of argument from the Syllogism" (p. 208). It is the essential property of the Syllogism, as defined by Aristotle and by every one after him, that the truth of the conclusion follows *necessarily* from the truth of its premisses: that you cannot admit the premisses and reject the conclusion without contradicting yourself. Now this is what the best Induction never attains; and I contend that the presence or absence of this important characteristic is quite enough to constitute "two *distinct kinds* of argument." Whately objects to Aldrich (whom Hamilton defends) for supplying a suppressed *minor*, because it is "manifestly false" (p. 209). I object to Whately's supplied *major*, because it is uncertified, and therefore cannot be used to prove any conclusion. By clothing arguments from Induction in syllogistic form, we invest them with a character of necessity which does not really belong to them. The establishment of general propositions, and the interpretation of them when established (to use the phraseology of Mr. Mill), must always be distinct mental processes; and the forms appropriate to the latter, involving necessary sequence, ought not to be employed to disguise the want of necessity—the varying and graduated probability, inherent in the former. Mr. Mill says (Syst. Log. Bk. III. ch. iii. s. 1, p. 343, 5th ed. :)—"As Whately remarks, every induction is a syllogism with the major premiss suppressed; or (as I prefer expressing it) every induction may be thrown into the form of a syllogism, by supplying a major premiss." Even in this modified phraseology, I cannot admit the propriety of throwing Induction into syllogistic forms of argument. By doing this we efface the special character of Induction, as the jump from particular cases, more or fewer, to an universal proposition comprising them and an indefinite number of others besides. To state this in forms which imply that it is a necessary step, involving nothing more than the interpretation of a higher universal proposition, appears to me unphilosophical. Mr. Mill says with truth (in his admirable chapter explaining the real function of the major premiss in a Syllogism, p. 211), that the individual cases are all the evidence which we possess; the step from them to universal propositions ought not to be expressed in forms which suppose universal propositions to be already attained.

I will here add that, though Aldrich himself (as I stated at the beginning of this note) treats the argument from Induction as a defective or informal Syllogism, his anonymous Oxonian editor and commentator takes a sounder view. He says (pp. 176, 177, 184, ed. 1823, Oxon.) :—

"The principles acquired by human powers may be considered as twofold. Some are *intuitive*, and are commonly called Axioms; the other class of general principles are those acquired by Induction. But it may be doubted whether this distinction is correct. It is highly probable, if not certain, that those primary Axioms generally esteemed *intuitive*, are in fact acquired by an inductive process; although that process is less discernible, because it takes place long before we think of tracing the actings of our own minds. It is often found necessary to facilitate the understanding of those Axioms, when they are first proposed to the judgment, by illustrations drawn from individual cases. But whether it is, as is generally supposed, the mere *enunciation* of the principle, or the *principle itself*, which requires the illustration, may admit of a doubt. It seems probable, however that, such illustrations are nothing more than a recurrence to the original method by which the knowledge of those principles was acquired. Thus, the repeated trial or observation of the necessary connection between mathematical coincidence and equality, first authorizes the general position or Axiom relative to that subject. If this conjecture is founded in fact, it follows that both *primary* and *ultimate* principles have the same nature and are alike acquired by the exercise of the

We must presume Syllogisms without a middle term, when we read:—"The Syllogism through a middle term is *by nature* prior, and of greater cognitive efficacy; but *to us* the Syllogism through Induction is plainer and clearer."[a] Nor, indeed, is the saying, when literally taken, at all well-founded; for the pretended Syllogisms from Induction and Example, far from being clear and plain, are more involved and difficult to follow than *Barbara* and *Celarent*. Yet the substance of Aristotle's thought is true and important, when considered as declaring the antithesis (not between varieties of Syllogisms, but) between Induction and Example on the one part, and Syllogism (Deduction) on the other. It is thus that he sets out the same antithesis elsewhere, both in the Analytica Posteriora and the Topica.[b] Prior and more cognizable *by nature* or *absolutely*, prior and more cognizable *to us* or *in relation to us*—these two are not merely distinct, but the one is the correlate and antithesis of the other. *To us* the particulars of sense stand first, and are the earliest objects of knowledge. *To us*, means to the large variety of individual minds, which grow up imperceptibly from the simple capacities of infancy to the mature accomplishments of adult years; each acquiring its own stock of sensible impressions, remembered, compared, associated; and each learning a language, which both embodies in general terms and propositions the received classification of objects, and communicates the current emotional beliefs. We all begin by being learners; and we ascend by different paths to those universal notions and beliefs which constitute the common fund of the advanced intellect; developed in some minds into *principia* of philosophy with their consequences. *By nature*, or *absolutely*, these *principia* are considered as prior, and as forming the point of departure: the advanced position is regarded as gained, and the march taken is not that of the novice, but that of the trained adult, who having already learnt much, is doubly equipped either for learning more or for teaching others; who thus stands on a summit

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inductive faculty." "Those who acquiesce in the preceding observations will feel a regret to find *Induction* classed among defective or informal Syllogisms. It is in fact prior in its order to Syllogism; nor can syllogistic reasoning be carried on to any extent without previous Induction" (p. 184).

[a] Analyt. Prior. II. xxiii. p. 68, b. 35: *φύσει μὲν οὖν πρότερος καὶ γνωριμώτερος ὁ διὰ τοῦ μέσου συλλογισμος, ἡμῖν δ' ἐναργέστερος ὁ διὰ τῆς ἐπαγωγῆς.*

[b] Analyt. Post. I. ii. p. 72, a. 2, b. 29; Ethic. Nik. VI. iii, p. 1139, b. 28; *ἡ μὲν δὴ ἐπαγωγὴ ἀρχή ἐστι καὶ τοῦ καθόλου, ὁ δὲ συλλογισμὸς ἐκ τῶν καθόλου. εἰσὶν ἄρα ἀρχαὶ ἐξ ὧν ὁ συλλογισμός, ὧν οὐκ ἔστι συλλογισμός· ἐπαγωγὴ ἄρα.* Compare Topica, I. xii. p. 105, a. 11; VI. iv. pp. 141, 142: Physica, I. i. p. 184, a. 16; Metaphysic. E. iv. p. 1029, b, 4-12. Compare also Trendelenburg's explanation of this doctrine, Erläuterungen zu den Elementen der Aristotelischen Logik, sects. 18, 19, 20, p. 33, seq.

from whence he surveys nature as a classified and coherent whole, manifesting herself in details which he can interpret and sometimes predict. The path of knowledge, seen *relatively to us*, is one through particulars, by way of example to fresh particulars, or by way of induction to universals. The path of knowledge, *by nature or absolutely*, is from universals by way of deduction either to new universals or to new particulars. By the cognitive *nature* of man, Aristotle means the full equipment, of and for cognition, which our mature age exhibits; *notiora naturâ* are the acquisitions, points of view, and processes, familiar in greater or less perfection to such mature individuals and societies. *Notiora nobis* are the facts and processes with which all of us begin, and which belong to the intellect in its highest as well as its lowest stage; though, in the higher stages, they are employed, directed, and modified, by an acquired intellectual capital, and by the permanent machinery of universal significant terms in which that capital is invested.

Such is the antithesis between *notiora naturâ* (or *simpliciter*) and *notiora nobis* (or *quoad nos*), which Aristotle recognizes as a capital point in his philosophy, and insists upon in many of his writings. The antithesis is represented by Example and Induction, in the point of view—*quoad nos*—last mentioned; by Syllogism or Deduction, in the other point of view—*naturâ*. Induction (he says),[a] or the rising from particulars to universals, is plainer, more persuasive, more within the cognizance of sensible perception, more within the apprehension of mankind generally, than Syllogism; but Syllogism is more cogent and of greater efficacy against controversial opponents. What he affirms here about Induction is equally true about the inference from Example, that is, the inference from one or some particulars, to other analogous particulars; the rudimentary intellectual process, common to all human and to many animal minds, of which Induction is an improvement and an exaltation. While Induction will be more impressive, and will carry assent more easily with an ordinary uncultivated mind, an acute disputant may always deny the ultimate inference, for the denial

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[a] Aristot. Topica, I. xii. p. 105, a. 13-19: ἐπαγωγὴ δὲ ἡ ἀπὸ τῶν καθ' ἕκαστον ἐπὶ τὰ καθόλου ἔφοδος· οἷον εἰ ἔστι κυβερνήτης ὁ ἐπιστάμενος κράτιστος καὶ ἡνίοχος, καὶ ὅλως ἐστὶν ὁ ἐπιστάμενος περὶ ἕκαστον ἄριστος. ἔστι δ' ἡ μὲν ἐπαγωγὴ πιθανώτερον καὶ σαφέστερον καὶ κατὰ τὴν αἴσθησιν γνωριμώτερον, καὶ τοῖς πολλοῖς κοινόν· ὁ δὲ συλλογισμὸς βιαστικώτερον καὶ πρὸς τοὺς ἀντιλογικοὺς ἐνεργέστερον. Also the same treatise. VI. iv. p. 141, b. 17.

The inductive interrogations of Sokrates relating to matters of common life, and the way in which they convinced ordinary hearers, are strikingly illustrated in the Memorabilia of Xenophon, especially IV. vi.: πολὺ μάλιστα ὧν ἐγὼ οἶδα, ὅτε λέγοι, τοὺς ἀκούοντας ὁμολογοῦντας παρεῖχεν (15). The same can hardly be said of the Platonic dialogues.

involves no contradiction. But the rightly constructed Syllogism constrains assent;[a] the disputant cannot grant the premisses and deny the conclusion without contradicting himself. The constraining force, however, does not come into accurate and regulated working until the principles and conditions of deductive reasoning have been set forth—until the Syllogism has been analysed, and the characteristics of its validity, as distinguished from its invalidity, have been marked out. This is what Aristotle teaches in the Analytica and Topica. It admits of being set out in regular figure and mode—forms of premisses with the conclusion appropriate to each; and the lesson must be learnt before we can know how far the force of deductive reasoning, which begins with the *notiora naturâ*, is legitimately binding and trustworthy.

Both the two main points of Aristotle's doctrine—the antithesis between Induction and Deduction, and the dependence of the latter process upon premisses furnished by the former, so that the two together form the two halves of complete ratiocination and authoritative proof—both these two are confused and darkened by his attempt to present the Inductive inference and the Analogical or Paradeigmatic inference as two special forms of Syllogistic deduction.[b] But when we put aside this attempt, and adhere to Aristotle's main doctrine—of Induction as a process antithetical to and separate from Deduction, yet as an essential preliminary thereto,—we see that it forms the basis of that complete and comprehensive System of Logic, recently elaborated in the work of Mr. John Stuart Mill. The inference from Example (*i.e.* from some particulars to other similar particulars) is distinguished by Aristotle from Induction, and is recognized by him as the primitive intellectual energy, common to all men, through which Induction is reached; its results he calls Experience (ἐμπειρία), and he describes it as the real guide, more essential than philosophical generalities, to exactness of

[a] Bacon, Novum Organ. I. Aphor. 13:—"Syllogismus assensum constringit, non res."

[b] Heyder (in his learned treatise, Darstellung der Aristotelischen und Hegelschen Dialektik, p. 226), after having considered the unsatisfactory process whereby Aristotle attempts to resolve Induction into a variety of Syllogism, concludes by a remark which I think just:—"Aus alle dem erhellt zur Genüge, dass sich Aristoteles bei dem Versuch die Induction auf eine Schlussform zurückzuführen, selbst sich nicht recht befriedigt fühlte, und derselbe wohl nur aus seinem durchgängigen Bestreben zu erklären ist, alles wissenschaftliche Verfahren in die Form des Schlusses zu bringen; dass dagegen, seiner eigentlichen Meinung und der strengen Consequenz seiner Lehre zu Folge, die Induction zum syllogistischen und beweisenden Verfahren einen in dem Begriff der beiden Verfahrungsweisen liegenden Gegensatz bildete, was sich ihm dann auch auf das Verhältniss der Induction zur Begriffsbestimmung ausdehnen musste."

performance in detail.[a] Mr. John Mill has been the first to assign to Experience, thus understood, its full value and true position in the theory of Ratiocination; and to show that the Paradeigmatic process exhibits the prime and ultimate reality of all Inference, the real premisses and the real conclusion which Inference connects together. Between these two is interposed the double process of which Induction forms the first half and Deduction the second; neither the one nor the other being indispensable to Inference, but both of them being required as securities for Scientific inference, if we desire to have its correctness tested and its sufficiency certified; the real evidence, whereby the conclusion of a Syllogism is proved, being the minor premiss, together with (not the major premiss itself, but) the assemblage of particular facts from which by Induction the major premiss is drawn. Now Aristotle had present to his mind the conception of Inference as an entire process, enabling us from some particular truths to discover and prove other particular truths: he considers it as an unscientific process, of which to a limited extent other animals besides man are capable, and which, as operative under the title of Experience in mature practical men, is a safer guide than Science amidst the doubts and difficulties of action. Upon this foundation he erects the superstructure of Science; the universal propositions acquired through Induction, and applied again to particulars or to lower generalities, through the rules of the deductive Syllogism. He signalizes, with just emphasis, the universalizing point of view called Science or Theory; but he regards it as emerging from particular facts, and as travelling again downwards towards particular facts. The misfortune is, that he contents himself with barely recognizing, though he distinctly proclaims the necessity of, the inductive part of this complex operation; while he bestows elaborate care upon the analysis of the deductive part, and of the rules for conducting it. From this disproportionate treatment, one half of Logic is made to look like the whole; Science is disjoined from Experience, and is presented as consisting in Deduction alone; every thing which is not Deduction, is degraded into unscientific Experience; the major premiss of the Syllogism being considered as part of the proof of the conclusion, and the conclusion being necessarily connected

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[a] Aristot. Analyt. Prior. II. xxiii. p. 68, b. 12; xxvi. p. 69, a. 17. Analyt. Post. II. xix. p. 99, b. 30, seq; xiii. p. 97, b. 7. Topica, VIII. i. p. 155, b. 35; p. 156, b. 10; p. 157, a. 14-23; p. 160, a. 36. Metaphys. A. i. p. 980, b. 25-p. 981, a. 30. This first chapter of the Metaphysica is one of the most remarkable passages of Aristotle, respecting the analytical philosophy of mind.

therewith, we appear to have acquired a *locus standi* and a binding cogency such as Experience could never supply; lastly, when Aristotle resolves Induction into a peculiar variety of the Syllogism, he appears finally to abolish all its separate dignity and jurisdiction. This one-sided view of Logic has been embraced and perpetuated by the Aristotelian expositors, who have carefully illustrated, and to a certain extent even amplified, the part which was already in comparative excess, while they have added nothing to the part that was in defect, and have scarcely even preserved Aristotle's recognition of it as being not merely legitimate but essential. The vast body of Inductive Science, accumulated during the last three centuries, has thus, until recently, been allowed to grow up, as if its proofs and processes had nothing to do with Logic.

But though this restricted conception of Logic or the theory of Reasoning has arisen naturally from Aristotle's treatment, I maintain that it does not adequately represent his view of that theory. In his numerous treatises on other subjects, scarcely any allusion is made to the Syllogism; nor is appeal made to the rules for it laid down in the Analytica. His conviction that the formalities of Deduction were only one part of the process of general reasoning, and that the value of the final conclusion depended not merely upon their being correctly performed, but also upon the correctness of that initial part whereby they are supplied with matter for premisses—is manifested as well by his industry (unrivalled among his contemporaries) in collecting multifarious facts, as by his specific declarations respecting Induction. Indeed, a recent most erudite logician, Sir William Hamilton, who insists upon the construction of Logic in its strictest sense as purely formal, blames Aristotle[a] for having transgressed this boundary, and for introducing other considerations bearing on diversities of matter and of material evidence. The charge so made, to whatever extent it is well-founded, does rather partake of the nature of praise; inasmuch as it evinces Aristotle's larger views of the theory of Inference, and confirms his own statement that the Deductive process was only the last half of it, presupposing a prior Induction. It is only this last half that Aristotle has here analysed, setting forth its formal conditions with precepts founded thereupon; while he claims to have accomplished the work by long and patient investigation, having found not the smallest foundation laid by others, and

[a] See his Discussions on Philosophy, p. 139, seq.; Lectures on Logic, vol. i. p. 27.

bespeaks indulgence[a] as for a first attempt requiring to be brought to completion by others. He made this first step for himself; and if any one would make a second step, so as to apply the same analysis to the other half, and to bring out in like manner the formal conditions and principles of Induction, we may fairly believe that Aristotle would have welcomed the act, as filling up what he himself recognized to be a gap in the entire compass of Reasoning. As to his own achievement, it is certain that he could not have composed the Analytica and Topica, if he had not had before him many specimens of the deductive process to study and compare. Neither could the inductive process have been analysed, until after the examples of successful advance in inductive science which recent years have furnished. Upon these examples, mainly, has been based the profound System of Mr. John Stuart Mill, analysing and discriminating the formalities of Induction in the same way as those of Deduction had before been handled by Aristotle; also fusing the two together as co-operative towards one comprehensive scheme of Logic—the Logic of Evidence generally, or of Truth as discoverable and proveable. In this scheme the Syllogistic Theory, or Logic of Consistency between one proposition and others, is recognized as an essential part, but is no longer tolerated as an independent whole.[b]

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[a] See the remarkable paragraph at the close of the Sophistici Elenchi, already quoted (supra, p. 140, note).

[b] Mr. John Stuart Mill says (Bk. II. ch. i. sect. 3): Induction is inferring a proposition from premisses *less general* than itself, and Ratiocination is inferring a proposition from premisses *equally or more general*." Again in another passage: "We have found that all Inference, consequently all Proof, and all discovery of truths not self-evident, consists of inductions, and the interpretation of inductions; that all our knowledge, not intuitive, comes to us exclusively from that source. What Induction is, therefore, and what conditions render it legitimate, cannot but be deemed the main question of logic—the question which includes all others. It is however one which professed writers on logic have almost entirely passed over. The generalities of the subject, indeed, have not been altogether neglected by metaphysicians; but, for want of sufficient acquaintance with the processes by which science has actually succeeded in establishing general truths, their analysis of the inductive operation, even when unexceptionable as to correctness, has not been specific enough to be made the foundation of practical rules, which might be for Induction itself what the rules of the Syllogism are for interpretation of Induction" (Bk. III. ch. i. s. 1. p. 313.)—"The business of Inductive Logic is to provide rules and models (such as the Syllogism and its rules are for ratiocination) to which if inductive arguments conform, those arguments are conclusive, and not otherwise. This is what the Four Methods profess to be, and what I believe they are universally considered to be by experimental philosophers, who had practised all of them long before any one sought to reduce the practice to theory" (Bk. III. ch. ix. s. 5, p. 471, 5th ed.)—See also the same point of view more copiously set forth, in Mr. Mill's later work, 'Examination of Sir W. Hamilton's Philosophy' (ch. xx. pp. 454-462, 3rd ed.): "It is only as a means to material truth that the formal (or to speak more clearly, the conditional) validity of an operation of thought is of any value; and even that value is only negative: we have not made the smallest positive advance towards right thinking, by merely keeping ourselves consistent in what is perhaps systematic error. This

After adverting to another variety of ratiocinative procedure, which he calls *Apagoge* or Abduction (where the minor is hardly more evident than the conclusion, and might sometimes conveniently become a conclusion first to be proved),[a] Aristotle goes on to treat of Objection generally—the function of the dialectical respondent. The *Enstasis* or Objection is a proposition opposed not to a conclusion, but to the proposition set up by the defendant. When the proposition set up by him is universal, as it must be if he seeks to establish an universal conclusion, your objection may be either universal or particular: you may deny either the whole of his proposition, or only one portion of the particulars contained under it; the denial of one single particular, when substantiated, being enough to overthrow his universal. Accordingly, your objection, being thus variously opposed to the proposition, will lie in the syllogistic figures which admit opposite conclusions; that is, either in the First or Third; for the Second figure admits only negative conclusions not opposed to each other. If the defendant has set up an Universal Affirmative, you may deny the whole and establish a contrary negative, in the First figure; or you may deny a part only, and establish a contradictory negative, in the Third figure. The like, if he has set up an Universal Negative: you may impugn it either by an universal contrary affirmative, in the First figure; or by a particular contradictory affirmative, in the Third figure.[b]

The Enthymeme is a syllogism from Probabilities or Signs;[c] the two being not exactly the same. *Probabilities* are propositions commonly accepted, and true in the greater number of cases; such as, Envious men hate those whom they envy, Persons who are beloved look with affection on those who love

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by no means implies that Formal Logic, even in its narrowest sense, is not of very great, though purely negative value."—"Not only however is it indispensable that the larger Logic, which embraces all the general conditions of the ascertainment of truth, should be studied in addition to the smaller Logic, which only concerns itself with the conditions of consistency; but the smaller Logic ought to be (at least, finally) studied as part of the greater—as a portion of the means to the same end; and its relation to the other parts—to the other means—should be distinctly displayed."

[a] Analyt. Prior. II. xxv. p. 69, a. 20-36.

[b] Ibid. II. xxvi. p. 69, a. 37-b. 37.

In objecting to A *universally*, you take a term comprehending the original subject; in objecting *particularly*, a term comprehended by it. Of the new term in each case you deny the original predicate, and have thus, as a major premiss, E. For a minor premiss, you affirm, in the first case, the new term as predicate of the original subject (less comprehensive); in the second case, the original subject (more comprehensive) as predicate of the new term. This gives you, in the first case, a conclusion in *Celarent* (Fig. I.), and, in the second, a conclusion in *Felapton* (Fig. III.); opposed, the one universally or contrarily, the other particularly or contradictorily, to the original proposition.

[c] Ibid. II. xxvii. p. 70, a. 10: *ἐνθύμημα μὲν οὖν ἐστὶ συλλογισμὸς ἐξ εἰκότων ἢ σημείων· λαμβάνεται δὲ τὸ σημεῖον τριχῶς, ὁσαχῶς καὶ τὸ μέσον ἐν τοῖς σχήμασι.*

them. We call it a *Sign*, when one fact is the antecedent or consequent of another, and therefore serves as mark or evidence thereof. The conjunction may be either constant, or frequent, or merely occasional: if constant, we obtain for the major premiss of our syllogism a proposition approaching that which is universally or necessarily true; if not constant but only frequent or occasional, the major premiss of our syllogism will at best only be probable. The constant conjunction will furnish us with a Syllogism or Enthymeme in the First figure; the significant mark being here a genuine middle term—subject in the major premiss, and predicate in the minor. We can then get a conclusion both affirmative and universally true. In other cases, we cannot obtain premisses for a syllogism in the First figure, but only for a syllogism in the Second or Third. In the Third figure, since we get by right no universal conclusions at all, but only particular conclusions, the conclusion of the Enthymeme, though it may happen to be true, is open to refutation. Where by the laws of Syllogism no affirmative conclusion whatever is possible, as in the Second figure, the conclusion obtained by Enthymeme is altogether suspicious. In contrast with the Sign in these figures, that which enters as an effective middle term into the First figure, should be distinguished under the name of *Proof* (τεκμήριον.)[a]

Aristotle concludes his Analytica Priora by applying this doctrine of Signs to determine the limits within which Physiog-

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[a] Analyt. Prior. II. xxvii. p. 70, a. 31-b. 6.

Aristotle throws in the remark (a. 24), that, when one premiss only of the Enthymeme is enunciated, it is a Sign; when the other is added, it becomes a Syllogism. In the examples given to illustrate the description of the Enthymeme, that which belongs to the First figure has its three terms and two propositions specified like a complete and regular Syllogism; but when we come to the Third and Second figures, Aristotle gives two alternate ways of stating each: one way in full, with both premisses enunciated, constituting a normal, though invalid, Syllogism; the other way, with only one of the premisses enunciated, the other being suppressed as well-known and familiar.

Among logicians posterior to Aristotle, the definition given of the Enthymeme, and supposed to be derived from Aristotle was, that it was a Syllogism with one of the premisses suppressed—μονολήμματος. Sir W. Hamilton has impugned this doctrine, and has declared the definition to be both absurd in itself, and not countenanced by Aristotle. (Lectures on Logic, Vol. I. Lect. xx. p. 386, seq.) I think Hamilton is mistaken on this point. (See Mr. Cope's Introd. to Arist. Rhetoric, p. 103, seq.) Even in the present chapter Aristotle distinctly alludes to the monolemmatic enunciation of the Enthymeme as one mode of distinguishing it from a full Syllogism; and in the Rhetorica he brings out this characteristic still more forcibly. The distinction is one which belongs to Rhetoric more than to Logic; the rhetor, in enunciating his premisses, must be careful not to weary his auditors; he must glance at or omit reasons that are familiar to them; logical fulness and accuracy would be inconsistent with his purpose. The writers subsequent to Aristotle, who think much of the rhetorical and little of the logical point of view, bring out the distinction yet more forcibly. But the rhetorical mode of stating premisses is often not so much an omission either of major or minor, as a confused blending or packing up of both into one.

nomy as a science is practicable. The basis upon which it rests is this general fact or postulate: That in all natural affections of the animal, bodily changes and mental changes accompany each other. The former, therefore, may become signs or proofs of the latter,[a] if, in each class of animals, we can discriminate the one specific bodily phenomenon which attaches to each mental phenomenon. Thus, the lion is a courageous animal. What is the bodily sign accompanying a courageous disposition? It is (we assume here) the having extremities of great size. This belongs to all lions, as a *proprium;* in the sense that, though it may or does belong also to some individuals of other races (as men), it does not belong to any other entire race. Physiognomy as a science will, then, be possible, if we can find races of animals which have only one characteristic mental attribute, and if we can discover what is the physical attribute correlating with it.[b] But the difficulties are greater when the same race has two characteristic mental attributes (*e.g.* lions are both courageous and generous), each with its correlative physical attribute; for how can we tell which belongs to which? We have then to study individuals of other races possessing one of these attributes without the other; thus, if we find that courageous men, who are not generous, agree in having large extremities, we may infer that this last circumstance is, in the lion, the correlative mark of his courage and not of his generosity. The physiognomonic inference will be expressed by a syllogism in the First figure, in which the major term (A) reciprocates and is convertible with the middle term (B), while B stretches beyond (or is more extensive than) the minor (C); this relation of the terms being necessary, if there is to be a single mark for a particular attribute.[c]

Here the treatise ends; but the reader will remember that, in describing the canons laid down by Aristotle for the Syllogism with its three Figures and the Modes contained therein, I confined myself to the simple Assertory syllogism, postponing for the moment the long expositions added by him about Modal syllogisms, involving the Possible and the Necessary. What is proper to be said about this complicated and useless portion of the Analytica Priora, may well come in here; for, in truth,

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[a] Analyt. Prior. II. xxvii. p. 70, b. 7-16: εἴ τις δίδωσιν ἅμα μεταβάλλειν τὸ σῶμα καὶ τὴν ψυχήν, ὅσα φυσικά ἐστι παθήματα· — συμπάσχειν γὰρ ἀλλήλοις ὑποκεῖται. See the Aristotelian treatise entitled Φυσιογνωμονικά, pp. 808-809, Bekk.

[b] Ibid. II. xxvii. p. 70, b. 22. About the characteristics of the lion see Aristot. Physiognom. p. 809, b. 14-36: τὰ περὶ τὴν ψυχὴν δοτικὸν καὶ ἐλεύθερον, μεγαλόψυχον καὶ φιλόνικον, καὶ πραῢ καὶ δίκαιον καὶ φιλόστοργον πρὸς ἃ ἂν ὁμιλήσῃ.

[c] Ibid. II. xxvii. p. 70, b. 31-36.

the doctrines just laid down about Probabilities, Signs, and Proofs, bring us back to the Modals under a different set of phrases. The Possible or Problematical is that, of the occurrence or reality of which we doubt, neither believing nor disbelieving it, not being prepared to assert either that it is, or that it is not; *that which may be or may not be.* It is our manner of speaking, when we have only signs or probabilities to guide us, and not certain proofs. The feeling of doubt is, as a psychological phenomenon, essentially distinct from the feeling of belief which, in its objective aspect, correlates with certainty or matter of fact; as well as from the feeling of disbelief, the correlate of which can only be described negatively. Every man knows these feelings by his own mental experience. But in describing the feeling of doubt, as to its matter or in its objective aspect, we must take care to use phrases which declare plainly both sides of its disjunctive or alternative character. The Possible is, *That which either may be or may not be.* As *That which may be,* it stands opposed to the Impossible; as *That which may not be,* it stands opposed to the Necessary. It thus carries with it negation both of impossibility and of necessity; but, in common parlance, the first half of this meaning stands out prominently, and is mistaken for the whole. Aristotle, as we saw previously, speaks equivocally on this point, recognizing a double signification of the term: he sometimes uses it in the sense opposed only to impossible, maintaining that what is necessary must also be possible; sometimes in the truer sense, opposed both to necessity and to impossibility.[a]

The Possible or Problematical, however, in this latter complete sense—*What may or may not be*—exhibits various modifications or gradations. 1. The chances on either side may be conceived as perfectly equal, so that there is no probability, and we have no more reason for expecting one side of the alternative than the other; the sequence or conjunction is indeterminate. Aristotle construes this indeterminateness in many cases (not as *subjective*, or as depending upon our want of complete knowledge and calculating power, but) as *objective*, insuperable, and inherent in many phenomenal agencies; characterizing it, under the names of Spontaneity and Chance, as the essentially unpredictable. 2. The chances on both sides may be conceived as unequal and the ratio between them as varying infinitely: the usual and ordinary tendency of phenomena—what Aristotle calls

[a] Aristot. De Interpret. xiii. p. 22. Analyt. Prior. I. xiii. p. 32, a. 21, 29, 36, xiv. p. 33, b. 22; xix. p. 38, a. 35.

Nature—prevails in the majority of cases, but not in all; being liable to occasional counteraction from Chance and other forces. Thus, between Necessity and perfect constancy at one extreme (such as the rotation of the sidereal sphere), and Chance at the other, there may be every shade of gradation; from natural agency next below the constant, down to the lowest degree of probability.[a]

Now, within the range of these limits lie what Aristotle describes as Signs and Probabilities; in fact, all the marks which we shall presently come to as distinguishing the *dialectical* syllogism from the *demonstrative*. But here is involved rather the matter of the Syllogism than its form. The form indeed is so far implicated, that (as Aristotle justly remarks at the end of the Analytica Priora[b]), the First figure is the only one that will prove both conjunctions and disjunctions, as well constant as occasional; the Third figure proves only occasional conjunctions and occasional disjunctions, not constant; the Second figure will prove no conjunctions at all, but only disjunctions, constant as well as occasional. Here a difference of form is properly pointed out as coupled with and founded on a difference of matter. But the special rules given by Aristotle, early in the present treatise, for the conversion of Modal Propositions, and the distinctions that he draws as to the modal character of the conclusion according as one or other of the premisses belongs to one or other of the different modes,—are both prolix and of little practical value.[c]

What he calls the Necessary might indeed, from the point of view now reached, cease to be recognized as a separate mode at all. The Certain and the Pròblematical are real modes of the Proposition; objective correlates to the subjective phases called Belief and Doubt. But no proposition can be more than certain: the word *necessary*, in strictness, implies only a peculiarity of the evidence on which our belief is grounded. Granting certain given premisses to be true, a given conclusion must be true also, if we would avoid inconsistency and contradiction.

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[a] Analyt. Prior. I. xiii. p. 32, b. 5-19. *τὸ δ' ἀόριστον τῷ μηδὲν μᾶλλον οὕτως ἢ ἐκείνως·* Compare Metaphys. K. p. 1064, b. 32.

[b] Analyt. Prior. II. xxvii. p. 70, a. 2-38. Compare what is said here about *εἰκός, σημεῖον, τεκμήριον*, with the first chapter of the Topica, and the dialectic syllogism as there described: *ὁ ἐξ ἐνδόξων συλλογιζόμενος.*

[c] Ibid. I. viii.-xxii. p. 29, b. 29-p. 40, b. 16.

CHAPTER VII.

ANALYTICA POSTERIORA I.

IN the two books of Analytica Priora, Aristotle has carried us through the full doctrine of the functions and varieties of the Syllogism; with an intimation that it might be applied to two purposes—Demonstration and Dialectic. We are now introduced to these two distinct applications of the Syllogism: first, in the Analytica Posteriora, to Demonstration; next, in the Topica, to Dialectic. We are indeed distinctly told that, as far as the forms and rules of Syllogism go, these are alike applicable to both;[a] but the difference of matter and purpose in the two cases is so considerable as to require a distinct theory and precepts for the one and for the other.

The contrast between Dialectic (along with Rhetoric) on the one hand and Science on the other is one deeply present to the mind of Aristotle. He seems to have proceeded upon the same fundamental antithesis as that which appears in the Platonic dialogues; but to have modified it both in meaning and in terminology, dismissing at the same time various hypotheses with which Plato had connected it.

The antithesis that both thinkers have in view is Opinion or Common Sense *versus* Science or Special Teaching and Learning; those aptitudes, acquirements, sentiments, antipathies, &c., which a man imbibes and appropriates insensibly, partly by his own doing and suffering, partly by living amidst the drill and example of a given society—as distinguished from those accomplishments which he derives from a teacher already known to possess them, and in which both the time of his apprenticeship and the steps of his progress are alike assignable.

Common Sense is the region of Opinion, in which there is diversity of authorities and contradiction of arguments without any settled truth; all affirmations being particular and relative, true at one time and place, false at another. Science, on the contrary, deals with imperishable Forms and universal truths,

[a] Analyt. Prior. I. xxx. p. 46, a. 4-10; Analyt. Post. I. ii. p. 71, a. 23.

which Plato regards, in their subjective aspect, as the innate, though buried, furniture of the soul, inherited from an external pre-existence, and revived in it out of the misleading data of sense by a process first of the cross-examining *Elenchus*, next of scientific Demonstration. Plato depreciates altogether the untaught, unexamined, stock of acquirements which passes under the name of Common Sense, as a mere worthless semblance of knowledge without reality; as requiring to be broken up by the scrutinizing *Elenchus*, in order to impress a painful but healthy consciousness of ignorance, and to prepare the mind for that process of teaching whereby alone Science or Cognition can be imparted.[a] He admits that Opinion may be right as well as wrong. Yet even when right, it is essentially different from Science, and is essentially transitory; a safe guide to action while it lasts, but not to be trusted for stability or permanence.[b] By Plato, Rhetoric is treated as belonging to the province of Opinion, Dialectic to that of Science. The rhetor addresses multitudes in continuous speech, appeals to received common places, and persuades: the dialectician, conversing only with one or a few, receives and imparts the stimulus of short question and answer; thus awakening the dormant capacities of the soul to the reminiscence of those universal Forms or Ideas which are the only true Knowable.

Like Plato, Aristotle distinguishes the region of Common Sense or Opinion from that of Science, and regards Universals as the objects of Science. But his Universals are very different from those of Plato: they are not self-existent realities, known by the mind from a long period of pre-existence, and called up by reminiscence out of the chaos of sensible impressions. To operate such revival is the great function that Plato assigns to Dialectic. But in the philosophy of Aristotle Dialectic is something very different. It is placed alongside of Rhetoric in the region of Opinion. Both the rhetor and the dialectician deal with all subjects, recognizing no limit; they attack or defend any or all conclusions, employing the process of ratiocination which Aristotle has treated under the name of Syllogism; they take up as premisses any one of the various opinions in circulation, for which some plausible authority may be cited; they follow out the consequences of one opinion in its bearing upon others, favourable or unfavourable, and thus become well fur-

[a] Plato, Sophistes, pp. 228-229; Symposion, pp. 203-204; Theætetus, pp. 148, 149, 150. Compare also 'Plato and the Other Companions of Sokrates,' Vol. I. chs. vi.-vii. pp. 245-288; II. ch. xxvi. p. 376, seq.

[b] Plato, Republic. v. pp. 477-478; Menon, pp. 97-98.

nished with arguments for and against all. The ultimate foundation here supposed is some sort of recognized presumption or authoritative sanction[a]—law, custom, or creed, established among this or that portion of mankind, some maxim enunciated by an eminent poet, some doctrine of the Pythagoreans or other philosophers, current proverb, answer from the Delphian oracle, &c. Any one of these may serve as a dialectical authority. But these authorities, far from being harmonious with each other, are recognized as independent, discordant, and often contradictory. Though not all of equal value,[b] each is sufficient to warrant the setting up of a thesis for debate. In Dialectic, one of the disputants undertakes to do this, and to answer all questions that may be put to him respecting the thesis, without implicating himself in inconsistencies or contradiction. The questioner or assailant, on the other hand, shapes his questions with a view to refute the thesis, by eliciting answers which may furnish him with premisses for some syllogism in contradiction thereof. But he is tied down by the laws of debate to syllogize only from such premisses as the respondent has expressly granted; and to put questions in such manner that the respondent is required only to give or withhold assent, according as he thinks right.

We shall see more fully how Aristotle deals with Dialectic, when we come to the Topica: here I put it forward briefly, in order that the reader may better understand, by contrast, its extreme antithesis, viz., Demonstrative Science and Necessary Truth as conceived by Aristotle. First, instead of two debaters, one of whom sets up a thesis which he professes to understand and undertakes to maintain, while the other puts questions upon it,—Demonstrative Science assumes a teacher who knows, and a learner conscious of ignorance but wishing to know. The teacher lays down premisses which the learner is bound to receive; or if they are put in the form of questions, the learner must answer them as the teacher expects, not according to his own knowledge. Secondly, instead of the unbounded miscellany of subjects treated in Dialectic, Demonstrative Science is confined to a few special subjects, in which alone appropriate premisses can be obtained, and definitions framed. Thirdly, instead

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[a] Aristot. Topica, I. x. p. 104, a. 8, xi. p. 104, b. 19. Compare Metaphysica, A. p. 995, a. 1-10.

[b] Analyt. Post. I. xix. p. 81, b. 18: κατὰ μὲν οὖν δόξαν συλλογιζομένοις καὶ μόνον διαλεκτικῶς δῆλον ὅτι τοῦτο μόνον σκεπτέον, εἰ ἐξ ὧν ἐνδέχεται ἐνδοξοτάτων γίνεται ὁ συλλογισμός, ὥστ᾽ εἰ καὶ ἔστι τι τῇ ἀληθείᾳ τῶν AB μέσον, δοκεῖ δὲ μή, ὁ διὰ τούτου συλλογιζόμενος συλλελόγισται διαλεκτικῶς· πρὸς δ᾽ ἀλήθειαν ἐκ τῶν ὑπαρχόντων δεῖ σκοπεῖν. Compare Topica, VIII. xii. p. 162, b. 27.

of the several heterogeneous authorities recognized in Dialectic, Demonstrative Science has *principia* of its own, serving as points of departure; some *principia* common to all its varieties, others special or confined to one alone. Fourthly, there is no conflict of authorities in Demonstrative Science; its propositions are essential, universal, and true *per se*, from the commencement to the conclusion; while Dialectic takes in accidental premisses as well as essential. Fifthly, the *principia* of Demonstrative Science are obtained from Induction only; originating in particulars which are all that the ordinary growing mind can at first apprehend (*notiora nobis*), but culminating in universals which correspond to the perfection of our cognitive comprehension (*notiora naturâ*.)[a]

Amidst all these diversities, Dialectic and Demonstrative Science have in common the process of Syllogism, including such assumptions as the rules of syllogizing postulate. In both, the conclusions are hypothetically true (*i.e.* granting the premisses to be so). But, in demonstrative syllogism, the conclusions are true universally, absolutely, and necessarily; deriving this character from their premisses, which Aristotle holds up as the cause, reason, or condition of the conclusion. What he means by Demonstrative Science, we may best conceive, by taking it as a small τέμενος or specially cultivated enclosure, subdivided into still smaller separate compartments—the extreme antithesis to the vast common land of Dialectic. Between the two lies a large region, neither essentially determinate like the one, nor essentially indeterminate like the other; an intermediate region in which are comprehended the subjects of the treatises forming the very miscellaneous Encyclopædia of Aristotle. These subjects do not admit of being handled with equal exactness; accordingly, he admonishes us that it is important to know how much exactness is attainable in each, and not to aspire to more.[b]

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[a] Aristot. Topica, VI. iv. p. 141, b. 3-14. *οἱ πολλοὶ λὰρ τὰ τοιαῦτα προγνωρίζουσιν· τὰ μὲν γὰρ τῆς τυχούσης, τὰ δ' ἀκριβοῦς καὶ περιττῆς διανοίας καταμαθεῖν ἐστίν.* Compare in Analyt. Post. I. xii. pp. 77-78, the contrast between *τὰ μαθήματα* and *οἱ διάλογοι.*

[b] Aristot. Ethic. Nikom. I. p. 1094, b. 12-25; p. 1098, a. 26-b. 8; Metaphys. A. p. 995, a. 15; Ethic. Eudem. I. p. 1216, b. 30-p. 1217, a. 17; Politic. VII. p. 1328, a. 19; Meteorolog. I. p. 338, a. 35. Compare Analyt. Post. I. xiii. p. 78, b. 32 (with Waitz's note, II. p. 335); and I. xxvii. p. 87, a. 31.

The passages above named in the Nikomachean Ethica are remarkable: *λέγοιτο δ' ἂν ἱκανῶς, εἰ κατὰ τὴν ὑποκειμένην ὕλην διασαφηθείς· τὸ γὰρ ἀκριβὲς οὐχ ὁμοίως ἐν ἅπασι τοῖς λόγοις ἐπιζητητέον, ὥσπερ οὐδ' ἐν τοῖς δημιουργουμένοις. τὴν ἀκρίβειαν μὴ ὁμοίως ἐν ἅπασιν ἐπιζητεῖν (χρή), ἀλλ' ἐν ἑκάστοις κατὰ τὴν ὑποκειμένην ὕλην, καὶ ἐπὶ τοσοῦτον ἐφ' ὅσον οἰκεῖον τῇ μεθόδῳ.* Compare Metaphys. E. p. 1025, b. 13: *ἀποδεικνύουσιν ἢ ἀναγκαιότερον ἢ μαλακώτερον.*

The different degrees of exactness attainable in different departments of science, and the reasons upon which such

In setting out the process of Demonstration, Aristotle begins from the idea of teaching and learning. In every variety thereof, some *præcognita* must be assumed, which the learner must know before he comes to be taught, and upon which the teacher must found his instruction.[a] This is equally true, whether we proceed (as in Syllogism) from the more general to the less general, or (as in Induction) from the particular to the general. He who comes to learn Geometry must know beforehand the figures called circle and triangle, and must have a triangular figure drawn to

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difference depends are well explained in the sixth book of Mr. John Stuart Mill's System of Logic, vol. II. chap. iii. pp. 422-425, 5th ed. Aristotle says that there can be no scientific theory or cognition about *τὸ συμβεβηκός*, which he defines to be that which belongs to a subject neither necessarily, nor constantly, nor usually, but only on occasion (Metaphys. E. p. 1026, b. 3, 26, 33; K. p. 1065, a. 1, meaning *τὸ συμβεβηκὸς μὴ καθ' αὑτό*,—Analyt. Post. I. 6, 75, a. 18; for he uses the term in two different senses—Metaph. Δ. p. 1025, a. 31). In his view, there can be no science except about constant conjunctions; and we find the same doctrine in the following passage of Mr. Mill:—"Any facts are fitted, in themselves, to be a subject of science, which follow one another according to constant laws; although those laws may not have been discovered, nor even be discoverable by our existing resources. Take, for instance, the most familiar class of meteorological phenomena, those of rain and sunshine. Scientific inquiry has not yet succeeded in ascertaining the order of antecedence and consequence among these phenomena, so as to be able, at least in our regions of the earth, to predict them with certainty, or even with any high degree of probability. Yet no one doubts that the phenomena depend on laws. . . . . Meteorology not only has in itself every requisite for being, but actually is, a science; though from the difficulty of observing the facts upon which the phenomena depend (a difficulty inherent in the peculiar nature of those phenomena), the science is extremely imperfect; and were it perfect, might probably be of little avail in practice, since the data requisite for applying its principles to particular instances would rarely be procurable.

"A case may be conceived of an intermediate character between the perfection of science, and this its extreme imperfection. It may happen that the greater causes, those on which the principal part of the phenomena depends, are within the reach of observation and measurement; so that, if no other causes intervened, a complete explanation could be given, not only of the phenomenon in general, but of all the variations and modifications which it admits of. But inasmuch as other, perhaps many other, causes, separately insignificant in their effects, co-operate or conflict in many or in all cases with those greater causes, the effect, accordingly, presents more or less of aberration from what would be produced by the greater causes alone. Now if these minor causes are not so constantly accessible, or not accessible at all, to accurate observation, the principal mass of the effect may still, as before, be accounted for, and even predicted; but there will be variations and modifications which we shall not be competent to explain thoroughly, and our predictions will not be fulfilled accurately, but only approximately.

"It is thus, for example, with the theory of the Tides. . . . . And this is what is or ought to be meant by those who speak of sciences which are not *exact* sciences. Astronomy was once a science, without being an exact science. It could not become exact until not only the general course of the planetary motions, but the perturbations also, were accounted for and referred to their causes. It has become an exact science because its phenomena have been brought under laws comprehending the whole of the causes by which the phenomena are influenced, whether in a great or only in a trifling degree, whether in all or only in some cases, and assigning to each of those causes the share of effect that really belongs to it. . . . The science of human nature falls far short of the standard of exactness now realized in Astronomy; but there is no reason that it should not be as much a science as Tidology is, or as Astronomy was when its calculations had only mastered the main phenomena, but not the perturbations."

[a] Analyt. Post. I. i. pp. 71-72; Metaphys. A. ix. p. 992, b. 30.

contemplate; he must know what is a unit or monad, and must have, besides, exposed before him what is chosen as the unit for the reasoning on which he is about to enter. These are the *præcognita* required for Geometry and Arithmetic. Some *præcognita* are also required preparatory to any and all reasoning: *e.g.*, the maxim of Identity (fixed meaning of terms and propositions), and the maxims of Contradiction and of Excluded Middle (impossibility that a proposition and its contradictory can either be both true or both false.)[a] The learner must thus know beforehand certain Definitions and Axioms, as conditions without which the teacher cannot instruct him in any demonstrative science.

Aristotle, here at the beginning, seeks to clear up a difficulty which had been raised in the time of Plato as between knowledge and learning. How is it possible to *learn* at all? is a question started in the Menon.[b] You either know a thing already, and, on this supposition, you do not want to learn it; or you do not know it, and in this case you cannot learn it, because, even when you have learnt, you cannot tell whether the matter learnt is what you were in search of. To this difficulty, the reply made in the Menon is, that you never *do* learn any thing really new. What you are said to learn, is nothing more than reminiscence of what had once been known in an anterior life, and forgotten at birth into the present life; what is supposed to be learnt is only the recall of that which you once knew, but had forgotten. Such is the Platonic doctrine of Reminiscence. Aristotle will not accept that doctrine as a solution; but he acknowledges the difficulty, and intimates that others had already tried to solve it without success. His own solution is that there are two grades of cognition: (1) the full, complete, absolute; (2) the partial, incomplete, qualified. What you already know by the first of these grades, you cannot be said to learn; but you may learn that which you know only by the second grade, and by such learning you bring your incomplete cognition up to completeness.

Thus, you have learnt, and you know, the universal truth, that every triangle has its three angles equal to two right angles; but you do not yet know that A B C, D E F, G H I, &c., have their two angles equal to two right angles; for you have not yet seen any of these figures, and you do not know that they *are* triangles. The moment that you see A B C, or hear what

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[a] Aristot. Analyt. Post. I. i. p. 71, a. 11-17. ἅπαν ἢ φῆσαι ἢ ἀποφῆσαι ἀληθές.
[b] Plato, Menon. p. 80.

figure it is, you learn at one and the same time two facts: first, that it is a triangle; next, by virtue of your previous cognition, that it possesses the above-mentioned property. You knew this *in a certain way* or incompletely before, by having followed the demonstration of the universal truth, and by thus knowing that *every* triangle had its three angles equal to two right angles; but you did not know it absolutely, being ignorant that A B C was a triangle.[a]

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[a] Aristot. Analyt. Post. I. i. p. 71, a. 17-b. 8: *ἔστι δὲ γνωρίζειν τὰ μὲν πρότερον γνωρίζοντα, τῶν δὲ καὶ ἅμα λαμβάνοντα τὴν γνῶσιν, οἷον ὅσα τυγχάνει ὄντα ὑπὸ τὸ καθόλου, ὧν ἔχει τὴν γνῶσιν. ὅτι μὲν γὰρ πᾶν τρίγωνον ἔχει δυσὶν ὀρθαῖς ἴσας, προῄδει· ὅτι δὲ τόδε τὸ ἐν τῷ ἡμικυκλίῳ τρίγωνόν ἐστιν, ἅμα ἐπαγόμενος ἐγνώρισεν.—πρὶν δ' ἐπαχθῆναι ἢ λαβεῖν συλλογισμόν, τρόπον μέν τινα ἴσως φατέον ἐπίστασθαι, τρόπον δ' ἄλλον οὔ. ὃ γὰρ μὴ ᾔδει εἰ ἔστιν ἁπλῶς, τοῦτο πῶς ᾔδει ὅτι δύο ὀρθὰς ἔχει ἁπλῶς; ἀλλὰ δῆλον ὡς ὡδὶ μὲν ἐπίσταται, ὅτι καθόλου ἐπίσταται, ἁπλῶς δ' οὐκ ἐπίσταται.—οὐδὲν (οἶμαι) κωλύει, ὃ μανθάνει, ἔστιν ὡς ἐπίστασθαι, ἔστι δ' ὡς ἀγνοεῖν· ἄτοπον γὰρ οὐκ εἰ οἶδέ πως ὃ μανθάνει, ἀλλ' εἰ ὡδί, οἷον ᾗ μανθάνει καὶ ὥς.* (Compare also Anal. Post. I. xxiv. p. 86, a. 23, and Metaph. A. ii. p. 982, a. 8; Anal. Prior. II. xxi. p. 67, a. 5-b. 10.)

Aristotle reports the solution given by others, but from which he himself dissented, of the Platonic puzzle. The respondent was asked, Do you know that every Dyad is even?—Yes. Some Dyad was then produced, which the respondent did not know to be a Dyad; accordingly he did not know it to be even. Now the critics alluded to by Aristotle said that the respondent made a wrong answer; instead of saying I know that every Dyad is even, he ought to have said, Every Dyad *which I know to be a Dyad* is even. Aristotle pronounces that this criticism is incorrect. The respondent knows the conclusion which had previously been demonstrated to him; and that conclusion was, Every triangle has its three angles equal to two right angles; it was not, Every thing *which I know* to be a triangle has its three angles equal to two right angles. This last proposition had never been demonstrated, nor even stated: *οὐδεμία γὰρ πρότασις λαμβάνεται τοιαύτη, ὅτι ὃν σὺ οἶδας ἀριθμόν, ἢ ὃ σὺ οἶδας εὐθύγραμμον, ἀλλὰ κατὰ παντός* (b. 3-5).

This discussion, in the commencement of the Analytica Posteriora (combined with Analyt. Priora, II. xxi.), is interesting, because it shows that even then the difficulties were felt, about the major proposition of the Syllogism, which Mr. John Stuart Mill has so ably cleared up, for the first time, in his System of Logic. See Book II. ch. iii. of that work, especially as it stands in the sixth edition, with the note there added, pp. 232-233. You affirm, in the major proposition of the Syllogism, that every triangle has its three angles equal to two right angles; does not this include the triangle A, B, C, and is it not therefore a *petitio principii?* Or, if it be not so, does it not assert more than you know? The Sophists (upon whom both Plato and Aristotle are always severe, but who were valuable contributors to the theory of Logic by fastening upon the weak points) attacked it on this ground, and raised against it the puzzle described by Aristotle (in this chapter), afterwards known as the Sophism entitled *ὁ ἐγκεκαλυμμένος* (see Themistius Paraphras. I. i.; also 'Plato and the Other Companions of Sokrates,' Vol. III. ch. xxxviii. p. 489). The critics whom Aristotle here cites and disapproves, virtually admitted the pertinence of this puzzle by modifying their assertion, and by cutting it down to "Everything *which we know to be a triangle* has its three angles equal to two right angles." Aristotle finds fault with this modification, which, however, is one way of abating the excess of absolute and peremptory pretension contained in the major, and of intimating the want of a minor to be added for interpreting and supplementing the major; while Aristotle himself arrives at the same result by admitting that the knowledge corresponding to the major proposition is not yet absolute, but incomplete and qualified; and that it is only made absolute when supplemented by a minor.

The very same point, substantially, is raised in the discussion between Mr. John Stuart Mill and an opponent, in the note above referred to. "A writer in the 'British Quarterly Review' endeavours to show that there is no *petitio*

Aristotle proceeds to tell us what is meant by knowing a thing *absolutely* or completely (ἁπλῶς.) It is when we believe ourselves to know the cause or reason through which the matter known exists, so that it cannot but be as it is. That is what Demonstration, or Scientific Syllogism, teaches us;[a] a Syllogism derived from premisses true, immediate, prior to, and more knowable than the conclusion—causes of the conclusion, and specially appropriate thereto. These premisses must be known beforehand without being demonstrated (*i.e.* known not through a middle term); and must be known not merely in the sense of

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principii in the Syllogism, by denying that the proposition All men are mortal, asserts or assumes that Socrates is mortal. In support of this denial, he argues that we may, and in fact do, admit the general proposition without having particularly examined the case of Socrates, and even without knowing whether the individual so named is a man or something else. But this of course was never denied. That we can and do draw inferences concerning cases specifically unknown to us, is the datum from which all who discuss this subject must set out. The question is, in what terms the evidence or ground on which we draw these conclusions may best be designated—whether it is most correct to say that the unknown case is proved by known cases, or that it is proved by a general proposition including both sets of cases, the known and the unknown? I contend for the former mode of expression. I hold it an abuse of language to say, that the proof that Socrates is mortal, is that all men are mortal. Turn it in what way we will, this seems to me asserting that a thing is the proof of itself. Whoever pronounces the words, All men are mortal, has affirmed that Socrates is mortal, though he may never have heard of Socrates; for since Socrates, whether known to be a man or not, really is a man, he is included in the words, All men, and in every assertion of which they are the subject. . . . . The reviewer acknowledges that the maxim (Dictum de Omni et Nullo) as commonly expressed—'Whatever is true of a class is true of everything included in the class,' is a mere identical proposition, since the class *is* nothing but the things included in it. But he thinks this defect would be cured by wording the maxim thus: 'Whatever is true of a class is true of everything which can be shown to be a member of the class:' as if a thing could be shown to be a member of the class without being one."

The qualified manner in which the maxim is here enunciated by the reviewer (what *can be shown* to be a member of the class) corresponds with the qualification introduced by those critics whom Aristotle impugns (*λύουσι γὰρ οὐ φάσκοντες εἰδέναι πᾶσαν δυάδα ἀρτίαν οὖσαν, ἀλλ' ἣν ἴσασιν ὅτι δυάς*); and the reply of Mr. Mill would have suited for these critics as well as for the reviewer. The puzzle started in the Platonic Menon is, at bottom, founded on the same view as that of Mr. Mill, when he states that the major proposition of the Syllogism includes beforehand the conclusion. "The general principle, (says Mr. Mill, p. 205), instead of being given as evidence of the particular case, cannot itself be taken for true without exception, until every shadow of doubt which could affect any case comprised in it is dispelled by evidence *aliunde*; and then what remains for the syllogism to prove? From a general principle we cannot infer any particulars but those which the principle itself assumes as known."

To enunciate this in the language of the Platonic Medon, we learn nothing by or through the evidence of the Syllogism, except a part of what we have already professed ourselves to know by asserting the major premiss.

[a] Aristot. Analyt. Post. I. ii. p. 71, b. 9-17. Julius Pacius says in a note, ad c. ii. p. 394: Propositio demonstrativa est prima, immediata, et indemonstrabilis. His tribus verbis significatur una et eadem conditio; nam propositio prima est, quæ, quod medio caret, demonstrari nequit."

So also Zabarella (In lib. I. Post. Anal. Comm., p. 340, Op. ed. Venet. 1617): "Duæ illæ dictiones (*primis* et *immediatis*) unam tantum significant conditionem ordine secundam, non duas; idem namque est, principia esse medio carentia, ac esse prima."

understanding the signification of the terms, but also in that of being able to affirm the truth of the proposition. *Prior* or *more knowable* is understood here as prior or more knowable *by nature* (not *relatively to us*, according to the antithesis formerly explained); first, most universal, undemonstrable *principia* are meant. Some of these are Axioms, which the learner must "bring with him from home," or know before the teacher can instruct him in any special science; some are Definitions of the name and its essential meaning; others, again, are Hypotheses or affirmations of the existence of the thing defined, which the learner must accept upon the authority of the teacher.[a] As these are the *principia* of Demonstration, so it is necessary that the learner should know them, not merely as well as the conclusions demonstrated, but even better; and that among matters contradictory to the *principia* there should be none that he knows better or trusts more.[b]

In Aristotle's time two doctrines had been advanced, in opposition to the preceding theory: (1) Some denied the necessity of any indemonstrable *principia*, and affirmed the possibility of demonstrating backwards *ad infinitum;* (2) Others agreed in denying the necessity of any indemonstrable *principia,* but contended that demonstration in a circle is valid and legitimate —*e.g.* that A may be demonstrated by means of B, and B by means of A. Against both these doctrines Aristotle enters his protest. The first of them—the supposition of an interminable regress—he pronounces to be obviously absurd: the second he declares tantamount to proving a thing by itself; the circular demonstration, besides, having been shown to be impossible, except in the First figure, with propositions in which the predicate reciprocates or is co-extensive with the subject—a very small proportion among propositions generally used in demonstrating.[c]

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[a] Aristot. Analyt. Post. I. ii. p. 72, a. 1-24; Themistius, Paraphr. I. ii. p. 10, ed. Spengel; Schol. p. 199, b. 44. Themistius quotes the definition of an Axiom as given by Theophrastus: Ἀξίωμά ἐστι δόξα τις, &c. This shows the difficulty of adhering precisely to a scientific terminology. Theophrastus explains an axiom to be a sort of δόξα, thus lapsing into the common loose use of the word. Yet still both he and Aristotle declare δόξα to be of inferior intellectual worth as compared with ἐπιστήμη (Anal. Post. I. xxiii.), while at the same time they declare the Axiom to be the very maximum of scientific truth. Theophrastus gave, as examples of Axioms, the maximum of Contradiction, universally applicable, and, "If equals be taken from equals the remainders will be equal," applicable to homogeneous quantities. Even Aristotle himself sometimes falls into the same vague employment of δόξα, as including the Axioms. See Metaphys. B. ii. p. 996, b. 28; Γ. iii. p. 1005, b. 33.

[b] Aristot. Anal. Post. I. ii. p. 72, a. 25, b. 4. I translate these words in conformity with Themistius, pp. 12-13, and with Mr. Poste's translation. p. 43. Julius Pacius and M. Barthélemy St. Hilaire render them somewhat differently. They also read ἀμετάπτωτος, while Waitz and Firmin Didot read ἀμετάπειστος, which last seems preferable.

[c] Aristot. Analyt. Post. I. iii. p. 72, b.

Demonstrative Science is attained only by syllogizing from necessary premisses, such as cannot possibly be other than they are. The predicate must be (1) *de omni*, (2) *per se*, (3) *quatenus ipsum*, so that it is a *Primum Universale*; this third characteristic not being realized without the preceding two. First, the predicate must belong, and belong at all times, to everything called by the name of the subject. Next, it must belong thereunto *per se*, or essentially; that is, either the predicate must be stated in the definition declaring the essence of the subject, or the subject must be stated in the definition declaring the essence of the predicate. The predicate must not be extra-essential to the subject, nor attached to it as an adjunct from without, simply concomitant or accidental. The like distinction holds in regard to events: some are accidentally concomitant sequences which may or may not be realized (*e.g.*, a flash of lightning occurring when a man is on his journey); in others, the conjunction is necessary or causal (as when an animal dies under the sacrificial knife).[a] Both these two characteristics (*de omni* and *per se*) are presupposed in the third (*quatenus ipsum*); but this last implies farther, that the predicate is attached to the subject in the highest universality consistent with truth; *i.e.*, that it is a First Universal, a primary predicate and not a derivative predicate. Thus, the predicate of having its three angles equal to two right angles, is a characteristic not merely *de omni* and *per se*, but also a First Universal, applied to a triangle. It is applied to a triangle, *quatenus* triangle, as a primary predicate. If applied to a subject of higher universality (*e.g.*, to every geometrical figure), it would not be always true. If applied to a subject of lower universality (*e.g.*, to a right-angled triangle or an isosceles triangle), it would be universally true and would be true *per se*, but it would be a derivative predicate and not a First Universal; it would not be applied to the isosceles *quatenus* isosceles, for there is a still higher Universal of which it is predicable, being true respecting any triangle you please. Thus, the properties with which Demonstration, or full and absolute

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5-p. 73, a. 20: *ὥστ' ἐπειδὴ ὀλίγα τοιαῦτα ἐν ταῖς ἀποδείξεσιν*, &c.

[a] Aristot. Analyt. Post. I. iv. p. 73, a. 21, b. 16.

Τὰ *ἄρα λεγόμενα ἐπὶ τῶν ἁπλῶς ἐπιστητῶν καθ' αὑτὰ οὕτως ὡς ἐνυπάρχειν τοῖς κατηγορουμένοις ἢ ἐνυπάρχεσθαι δι' αὑτά τέ ἐστι καὶ ἐξ ἀνάγκης* (b. 16, seq.). *Line* must be included in the definition of the opposites *straight* or *curve*. Also it is essential to every line that it is either straight or curve. *Number* must be included in the definition of the opposites *odd* or *even*; and to be either odd or even is essentially predicable of every number. You cannot understand what is meant by *straight* or *curve* unless you have the notion of a *line*.

The example given by Aristotle of *causal* conjunction (the death of an animal under the sacrificial knife) shows that he had in his mind the perfection of Inductive Observation, including full application of the Method of Difference.

Science, is conversant, are *de omni*, *per se*, and *quatenus ipsum*, or *Universalia Prima*;[a] all of them necessary, such as cannot but be true.

Aristotle remarks that there is great liability to error about these *Universalia Prima*. We sometimes demonstrate a predicate to be true, universally and *per se*, of a lower species, without being aware that it might also be demonstrated to be true, universally and *per se*, of the higher genus to which that species belongs; perhaps, indeed, that higher genus may not yet have obtained a current name. That proportions hold by permutation, was demonstrated severally for numbers, lines, solids, and intervals of time; but this belongs to each of them, not from any separate property of each, but from what is common to all: that, however, which is common to all had received no name, so that it was not known that one demonstration might comprise all the four.[b] In like manner, a man may know that an equilateral and an isosceles triangle have their three angles equal to two right angles, and also that a scalene triangle has its three angles equal to two right angles; yet he may not know (except sophistically and by accident[c]) that a triangle *in genere* has its three angles equal to two right angles, though there be no other triangles except equilateral, isosceles, and scalene. He does not know that this may be demonstrated of every triangle *quatenus* triangle. The only way to obtain a

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[a] Aristot. Analyt. Post. I. iv. p. 73, b. 25-p. 74, a. 3. ὃ τοίνυν τὸ τυχὸν πρῶτον δείκνυται δύο ὀρθὰς ἔχον ἢ ὁτιοῦν ἄλλο, τούτῳ πρώτῳ ὑπάρχει καθόλου, καὶ ἡ ἀπόδειξις καθ' αὑτὸ τούτου καθόλου ἐστί, τῶν δ' ἄλλων τρόπον τινὰ οὐ καθ' αὑτό· οὐδὲ τοῦ ἰσοσκέλους οὐκ ἔστι καθόλου ἀλλ' ἐπὶ πλέον.

About the precise signification of *καθόλου* in Aristotle, see a valuable note of Bonitz (ad Metaphys. Z. iii.) p. 299; also Waitz (ad Aristot. De Interpr. c. vii.) I. p. 334. Aristotle gives it here, b. 26: *καθόλου δὲ λέγω ὃ ἂν κατὰ παντός τε ὑπάρχῃ καὶ καθ' αὑτὸ καὶ ᾗ αὐτό.* Compare Themistius, Paraphr. p. 19, Spengel. Τὸ *καθ' αὑτό* is described by Aristotle confusedly. Τὸ *καθόλου*, is that which is predicable of the subject as a whole or *summum genus*: *τὸ κατὰ παντός*, that which is predicable of every individual, either of the *summum genus* or of any inferior species contained therein. Cf. Analyt. Post. I. xxiv. p. 85, b. 24; *ᾧ γὰρ καθ' αὑτὸ ὑπάρχει τι, τοῦτο αὐτὸ αὑτῷ αἴτιον*—the subject is itself the cause or *fundamentum* of the properties *per se*. See the explanation and references in Kampe, Die Erkenntniss-theorie des Aristoteles, ch. v. pp. 160-165.

[b] Aristot. Analyt. Post. I. v. p. 74, a. 4-23. *ἀλλὰ διὰ τὸ μὴ εἶναι ὠνομασμένον τι πάντα ταῦτα ἕν, ἀριθμοί, μήκη, χρόνος, στερεά, καὶ εἴδει διαφέρειν ἀλλήλων, χωρὶς ἐλαμβάνετο.* What these four have in common is that which he himself expresses by Ποσόν — *Quantum* — in the Categoriæ and elsewhere. (Categor. p. 4, b. 20, seq.; Metaph. Δ. p. 1020, a. 7, seq.)

[c] Aristot. Analyt. Post. I. v. p. 74, a. 27: *οὔπω οἶδε τὸ τρίγωνον ὅτι δύο ὀρθαῖς, εἰ μὴ τὸν σοφιστικὸν τρόπον οὐδὲ καθόλου τρίγωνον, οὐδ' εἰ μηδέν ἐστι παρὰ ταῦτα τρίγωνον ἕτερον.* The phrase *τὸν σοφιστικὸν τρόπον* is equivalent to *τὸν σοφιστικὸν τρόπον τὸν κατὰ συμβεβηκός*, p. 71, b. 10. I see nothing in it connected with Aristotle's characteristic of a Sophist (special professional life purpose —*τοῦ βίου τῇ προαιρέσει*, Metaphys. Γ. p. 1004, b. 24): the phrase means nothing more than *unscientific*.

certain recognition of *Primum Universale*, is, to abstract successively from the several conditions of a demonstration respecting the concrete and particular, until the proposition ceases to be true. Thus, you have before you a brazen isosceles triangle, the three angles whereof are equal to two right angles. You may eliminate the condition brazen, and the proposition will still remain true. You may also eliminate the condition isosceles; still the proposition is true. But you cannot eliminate the condition triangle, so as to retain only the higher genus, geometrical figure; for the proposition then ceases to be always true. Triangle is in this case the *Primum Universale*.[a]

In every demonstration the *principia* or premisses must be not only true, but necessarily true: the conclusion also will then be necessarily true, by reason of the premisses, and this constitutes Demonstration. Wherever the premisses are necessarily true, the conclusion will be necessarily true; but you cannot say, *vice versâ*, that wherever the conclusion is necessarily true, the syllogistic premisses from which it follows must always be necessarily true. They may be true without being necessarily true, or they may even be false: if, then, the conclusion be necessarily true, it is not so by reason of these premisses; and the syllogistic proof is in this case no demonstration. Your syllogism may have true premisses and may lead to a conclusion which is true by reason of them; but still you have not demonstrated, since neither premisses nor conclusion are *necessarily* true.[b] When an opponent contests your demonstration, he succeeds if he can disprove the *necessity* of your conclusion; if he can show any single case in which it either is or may be false.[c] It is not enough to proceed upon a premiss which is either probable or simply true: it may be true, yet not appropriate to the case: you must take your departure from the first or highest universal of the genus about which you attempt to demonstrate.[d] Again, unless you can state the *why* of your conclusion; that is to say, unless the middle term, by reason of which the conclusion is necessarily true, be itself necessarily true,—you have not demonstrated it, nor do you know it absolutely. Your

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[a] Aristot. Analyt. Post. I. v. p. 74, a. 32-b. 4.

[b] Ibid. vi. p. 74, b. 5-18. ἐξ ἀληθῶν μὲν γὰρ ἔστι καὶ μὴ ἀποδεικνύντα συλλογίσασθαι, ἐξ ἀναγκαίων δ' οὐκ ἔστιν ἀλλ' ἢ ἀποδεικνύντα· τοῦτο γὰρ ἤδη ἀποδείξεώς ἐστιν. Compare Analyt. Prior. I. ii. p. 53, b. 7-25.

[c] Aristot. Analyt. Post. I. vi. p. 74, b. 18: σημεῖον δ' ὅτι ἡ ἀπόδειξις ἐξ ἀναγκαίων, ὅτι καὶ τὰς ἐνστάσεις οὕτω φέρομεν πρὸς τοὺς οἰομένους ἀποδεικνύναι, ὅτι οὐκ ἀνάγκη, &c.

[d] Ibid. vi. p. 74, b. 21-26: δῆλον δ' ἐκ τούτων καὶ ὅτι εὐήθεις οἱ λαμβάνειν οἰόμενοι καλῶς τὰς ἀρχάς, ἐὰν ἔνδοξος ᾖ ἡ πρότασις καὶ ἀληθής, οἷον οἱ σοφισταὶ ὅτι τὸ ἐπίστασθαι τὸ ἐπιστήμην ἔχειν· &c.

middle term not being necessary may vanish, while the conclusion to which it was supposed to lead abides: in truth no conclusion was known through that middle.[a] In the complete demonstrative or scientific syllogism, the major term must be predicable essentially or *per se* of the middle, and the middle term must be predicable essentially or *per se* of the minor; thus alone can you be sure that the conclusion also is *per se* or necessary. The demonstration cannot take effect through a middle term which is merely a Sign; the sign, even though it be a constant concomitant, yet being not, or at least not known to be, *per se*, will not bring out the *why* of the conclusion, nor make the conclusion necessary. Of non-essential concomitants altogether there is no demonstration; wherefore it might seem to be useless to put questions about such; yet, though the questions cannot yield necessary premisses for a demonstrative conclusion, they may yield premisses from which a conclusion will necessarily follow.[b]

In every demonstration three things may be distinguished: (1) The demonstrated conclusion, or Attribute essential to a certain genus; (2) The Genus, of which the attributes *per se* are the matter of demonstration; (3) The Axioms, out of which, or through which, the demonstration is obtained. These Axioms may be and are common to several genera: but the demonstration cannot be transferred from one genus to another; both the extremes as well as the middle term must belong to the same genus. An arithmetical demonstration cannot be transferred to magnitudes and their properties, except in so far as magnitudes are numbers, which is partially true of some among them. The demonstrations in arithmetic may indeed be transferred to harmonics, because harmonics is subordinate to arithmetic; and, for the like reason, demonstrations in geometry may be transferred to mechanics and optics. But we cannot introduce into geometry any property of lines, which does not belong to them *quâ* lines; such, for example, as that a straight line is the most beautiful of all lines, or is the contrary of a circular line; for these predicates belong to it, not *quâ* line, but *quâ* member of a different or more extensive genus.[c] There can be no

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[a] Aristot. Analyt. Post. I. vi. p. 74, b. 26-p. 75, a. 17.

[b] Ibid. vi. p. 75, a. 8-37.

On the point last mentioned, M. Barthélemy St. Hilaire observes in his note, p. 41:—Dans les questions de dialectique, la conclusion est nécessaire en ce sens, qu'elle suit nécessairement des prémisses; elle n'est pas du tout nécessaire en ce sens, que la chose qu'elle exprime soit nécessaire. Ainsi il faut distinguer la nécessité de la forme et la nécessité de la matière: ou comme disent les scholastiques, *necessitas illationis et necessitas materiæ*. La dialectique se contente de la première, mais la démonstration a essentiellement besoin des deux."

[c] Ibid. vii. p. 75, a. 38-b. 20. Mr. Poste, in his translation, here cites (p. 50) a good

complete demonstration about perishable things, or about any individual line, except in regard to its attributes as member of the genus line. Where the conclusion is not eternally true, but true at one time and not true at another, this can only be because one of its premisses is not universal or essential. Where both premisses are universal and essential, the conclusion must be eternal or eternally true. As there is no demonstration, so also there can be no definition, of perishable attributes.[a]

For complete demonstration, it is not sufficient that the premisses be true, immediate, and undemonstrable; they must, furthermore, be essential and appropriate to the class in hand. Unless they be such, you cannot be said to know the conclusion *absolutely;* you know it only by accident. You can only know a conclusion when demonstrated from its own appropriate premisses; and you know it best when it is demonstrated from its highest premisses. It is sometimes difficult to determine whether we really know or not; for we fancy that we know, when we demonstrate from true and universal *principia*, without being aware whether they are, or are not, the *principia* appropriate to the case.[b] But these *principia* must always be assumed without demonstration—the class whose essential constituent properties are in question, the universal Axioms, and the Definition or meaning of the attributes to be demonstrated. If these definitions and axioms are not always formally enunciated, it is because we tacitly presume them to be already known and admitted by the learner.[c] He may indeed always refuse to grant them in express words, but they are such that he cannot help granting them by internal assent in his mind, to which every syllogism must address itself. When you assume a premiss without demonstrating it, though it be really demonstrable, this, if the learner is favourable and willing to grant it, is an assumption or Hypothesis, valid relatively to him alone, but not valid absolutely: if he is reluctant or adverse, it is a Postulate, which

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illustrative passage from Dr. Whewell's Philosophy of the Inductive Sciences. Book II. ii.:—"But, in order that we may make any real advance in the discovery of truth, our ideas must not only be clear; they must also be *appropriate.* Each science has for its basis a different class of ideas; and the steps which constitute the progress of one science can never be made by employing the ideas of another kind of science. No genuine advance could ever be obtained in Mechanics by applying to the subject the ideas of space and time merely; no advance in Chemistry by the use of mere mechanical conceptions; no discovery in Physiology by referring facts to mere chemical and mechanical principles." &c.

[a] Aristot. Analyt. Post. I. viii. p. 75, b. 21-36. Compare Metaph. Z. p. 1040, a. 1: *δῆλον ὅτι οὐκ ἂν εἴη αὐτῶν (τῶν φθαρτῶν) οὔθ' ὁρισμὸς οὔτ' ἀπόδειξις.* Also Biese, Die Philosophie des Aristoteles, ch. iv. p. 249.

[b] Ibid. ix. p. 75, b. 37-p. 76, a. 30.

[c] Ibid. x. p. 76, a. 31-b. 22.

you claim whether he is satisfied or not.[a] The Definition by itself is not an hypothesis; for it neither affirms nor denies the existence of anything. The pupil must indeed understand the terms of it; but this alone is not an hypothesis, unless you call the fact that the pupil comes to learn, an hypothesis.[b] The Hypothesis or assumption is contained in the premisses, being that by which the reason of the conclusion comes to be true. Some object that the geometer makes a false hypothesis or assumption, when he declares a given line drawn to be straight, or to be a foot long, though it is neither one nor the other. But this objection has no pertinence, since the geometer does not derive his conclusions from what is true of the visible lines drawn before his eyes, but from what is true of the lines conceived in his own mind, and signified or illustrated by the visible diagrams.[c]

The process of Demonstration neither requires, nor countenances, the Platonic theory of Ideas—universal substances beyond and apart from particulars. But it does require that we should admit universal predications; that is, one and the same predicate truly applicable in the same sense to many different particulars. Unless this be so, there can be no universal major premiss, nor appropriate middle term, nor valid demonstrative syllogism.[d]

The Maxim or Axiom of Contradiction, in its most general enunciation, is never formally enunciated by any special science; but each of them assumes the Maxim so far as applicable to its own purpose, whenever the *Reductio ad Absurdum* is introduced.[e] It is in this and the other common principles or Axioms that all the sciences find their point of contact and communion; and that Dialectic also comes into communion with all of them, as also the science (First Philosophy) that scrutinizes the validity or demonstrability of the Axioms.[f] The dialectician is not con-

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[a] Aristot. Analyt. Post. I. x. p. 76, b. 29-34: ἐὰν μὲν δοκοῦντα λαμβάνῃ τῷ μανθάνοντι, ὑποτίθεται, καὶ ἔστιν οὐχ ἁπλῶς ὑπόθεσις, ἀλλὰ πρὸς ἐκεῖνον μόνον, ἂν δὲ ἢ μηδεμιᾶς ἐνούσης δόξης ἢ καὶ ἐναντίας ἐνούσης λαμβάνῃ τὸ αὐτό, αἰτεῖται. καὶ τούτῳ διαφέρει ὑπόθεσις καὶ αἴτημα, &c. Themistius, Paraphras. p. 37, Spengel.

[b] Ibid. p. 76, b. 36: τοῦτο δ' οὐχ ὑπόθεσις, εἰ μὴ καὶ τὸ ἀκούειν ὑπόθεσίν τις εἶναι φήσει. For the meaning of τὸ ἀκούειν, compare ὁ ἀκούων, infra, Analyt. Post I. xxiv. p. 85, b. 22.

[c] Ibid. p. 77, a. 1: ὁ δὲ γεωμέτρης οὐδὲν συμπεραίνεται τῷ τήνδε εἶναι τὴν γραμμὴν ἣν αὐτὸς ἔφθεγκται, ἀλλὰ τὰ διὰ τούτων δηλούμενα.

Themistius, Paraphr. p. 37: ὥσπερ οὐδ' οἱ γεωμέτραι κέχρηνται ταῖς γραμμαῖς ὑπὲρ ὧν διαλέγονται καὶ δεικνύουσιν, ἀλλ' ἃς ἔχουσιν ἐν τῇ ψυχῇ, ὧν εἰσὶ σύμβολα αἱ γραφόμεναι.

A similar doctrine is asserted, Analyt. Prior. I. xli. p. 49, b. 35, and still more clearly in De Memoria et Reminiscentia, p. 450, a. 2-12.

[d] Aristot. Analyt. Post. I. xi. p. 77, a. 5-9.

[e] Ibid. a. 10, seq.

[f] Ibid. a.

fined to any one science, or to any definite subject-matter. His liberty of interrogation is unlimited; but his procedure is essentially interrogatory, and he is bound to accept the answer of the respondent—whatever it be, affirmative or negative—as premiss for any syllogism that he may construct. In this way he can never be sure of demonstrating any thing; for the affirmative and the negative will not be equally serviceable for that purpose. There is indeed also, in discussions on the separate sciences, a legitimate practice of scientific interrogation. Here the questions proper to be put are limited in number, and the answers proper to be made are determined beforehand by the truths of the science—say Geometry; still, an answer thus correctly made will serve to the interrogator as premiss for syllogistic demonstration.[a] The respondent must submit to have such answer tested by appeal to geometrical *principia* and to other geometrical propositions already proved as legitimate conclusions from the *principia*; if he finds himself involved in contradictions, he is confuted *quâ* geometer, and must correct or modify his answer. But he is not bound, *quâ* geometer, to undergo scrutiny as to the geometrical *principia* themselves; this would carry the dialogue out of the province of Geometry into that of First Philosophy and Dialectic. Care, indeed, must be taken to keep both questions and answers within the limits of the science. Now there can be no security for this restriction, except in the scientific competence of the auditors. Refrain, accordingly, from all geometrical discussions among men ignorant of geometry and confine yourself to geometrical auditors, who alone can distinguish what questions and answers are really appropriate. And what is here said about geometry, is equally true about the other special sciences.[b] Answers may be improper either as foreign to the science under debate, or as appertaining to the science, yet false as to the matter, or as equivocal in middle term; though this last is less likely to occur in Geometry, since the demonstrations are accompanied by diagrams, which help

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26-30: *καὶ εἴ τις καθόλου πειρῷτο δεικνύναι τὰ κοινά, οἷον ὅτι ἅπαν φάναι ἢ ἀποφάναι, ἢ ὅτι ἴσα ἀπὸ ἴσων, ἢ τῶν τοιούτων ἄττα.* Compare Metaph. K. p. 1061. b. 18.

[a] Aristot. Analyt. Post. I. xii. p. 77, a. 36-40; Themistius, p. 40.

The text is here very obscure. He proceeds to distinguish Geometry especially (also other sciences, though less emphatically) from *τὰ ἐν τοῖς διαλόγοις* (I. xii. p. 78, a. 12).

Julius Pacius, ad Analyt. Post. I. viii. (he divides the chapters differently), p. 417, says:—"Differentia interrogationis dialecticæ et demonstrativæ hæc est. Dialecticus ita interrogat, ut uptionem det adversario, utrum malit affirmare an negare. Demonstrator vero interrogat ut rem evidentiorem faciat; id est, ut doceat ex principiis auditori notis."

[b] Ibid. I. xii. p. 77, b. 1-15; Themistius, p. 41: *οὐ γὰρ ὥσπερ τῶν ἐνδόξων οἱ πολλοὶ κριταί, οὕτω καὶ τῶν κατ' ἐπιστήμην οἱ ἀνεπιστήμονες.*

to render conspicuous any such ambiguity.[a] To an inductive proposition, bringing forward a single case as contributory to an ultimate generalization, no general objection should be offered; the objection should be reserved until the generalization itself is tendered.[b] Sometimes the mistake is made of drawing an affirmative conclusion from premisses in the Second figure; this is formally wrong, but the conclusion may in some cases be true, if the major premiss happens to be a reciprocating proposition, having its predicate co-extensive with its subject. This, however, cannot be presumed; nor can a conclusion be made to yield up its principles by necessary reciprocation; for we have already observed that, though the truth of the premisses certifies the truth of the conclusion, we cannot say *vice versâ* that the truth of the conclusion certifies the truth of the premisses. Yet propositions are more frequently found to reciprocate in scientific discussion than in Dialectic; because, in the former, we take no account of accidental properties, but only of definitions and what follows from them.[c]

Knowledge of Fact and knowledge of the Cause must be distinguished, and even within the same science.[d] In some syllogisms the conclusion only brings out *τὸ ὅτι*—the reality of certain facts; in others, it ends in *τὸ διότι*—the affirmation of a cause, or of the *Why*. The syllogism of the *Why* is, where the middle term is not merely the cause, but the proximate cause, of the conclusion. Often, however, the effect is more notorious, so that we employ it as middle term, and conclude from it to its reciprocating cause; in which case our syllogism is only of the *ὅτι*; and so it is also when we employ as middle term a cause not proximate but remote, concluding from that to the effect.[e] Some-

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[a] Analyt. Post. I. xii. p. 77, b. 16-33. Propositions within the limits of the science, but false as to matter, are styled by Aristotle *ψευδογραφήματα*. See Aristot. Sophist. Elench. xi. p. 171, b. 14; p. 172, a. 1.

"L'interrogation syllogistique se confondant avec la proposition, il s'ensuit que l'interrogation doit être, comme la proposition, propre à la science dont il s'agit." (Barthélemy St. Hilaire, note, p. 70). Interrogation here has a different meaning from that which it bears in Dialectic.

[b] Ibid. I. xii. p. 77. b. 34 seq. This passage is to me hardly intelligible. It is differently understood by commentators and translators. John Philoponus in the Scholia (p. 217, b. 17-32, Brandis), cites the explanation of it given by Ammonius, but rejects that explanation, and waits for others to supply him with a better. Zabarella (Comm. in Analyt. Post. pp. 426, 456, ed. Venet. 1617) admits that as it stands, and where it stands, it is unintelligible, but transposes it to another part of the book (to the end of cap. xvii., immediately before the words *φανερὸν δὲ καὶ ὅτι*, &c., of c. xviii.), and gives an explanation of it in this altered position. But I do not think he has succeeded in clearing it up.

[c] Ibid. I. xii. p. 77, b. 40-p. 78, a. 13.

[d] Ibid. I. xiii. p. 77, a. 22 seq.

[e] Themistius, p. 45: *πολλάκις συμβαίνει καὶ ἀντιστρέφειν ἀλλήλοις τὸ αἴτιον καὶ τὸ σημεῖον καὶ ἄμφω δείκνυσθαι δι' ἀλλήλων, διὰ τοῦ σημείου μὲν ὡς τὸ ὅτι, διὰ θατέρου δὲ ὡς τὸ διότι.*

"Cum enim vera demonstratio, id est *τοῦ διότι*, fiat per causam proximam, consequens est, ut demonstratio vel per

times the syllogisms of the ὅτι may fall under one science, those of the διότι under another, namely, in the case where one science is subordinate to another, as optics to geometry, and harmonics to arithmetic; the facts of optics and harmonics belonging to sense and observation, the causes thereof to mathematical reasoning. It may happen, then, that a man knows τὸ διότι well, but is comparatively ignorant τοῦ ὅτι: the geometer may have paid little attention to optical facts.[a] Cognition of the διότι is the maximum, the perfection, of all cognition; and this, comprising arithmetical and geometrical theorems, is almost always attained by syllogisms in the First figure. This figure is the most truly scientific of the three; the other two figures depend upon it for expansion and condensation. It is, besides, the only one in which universal affirmative conclusions can be obtained; for in the Second figure we get only negative conclusions; in the Third, only particular. Accordingly, propositions declaring Essence or Definition, obtained only through universal affirmative conclusions, are yielded in none but the First figure.[b]

As there are some affirmative propositions that are indivisible, *i.e.*, having affirmative predicates which belong to a subject at once, directly, immediately, indivisibly,—so there are also some indivisible negative propositions, *i.e.*, with predicates that belong negatively to a subject at once, directly, &c. In all such there is no intermediate step to justify either the affirmation of the predicate, or the negation of the predicate, respecting the given subject. This will be the case where neither the predicate nor the subject is contained in any higher genus.[c]

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effectum proximum, vel per causam remotam, sit demonstratio τοῦ ὅτι" (Julius Pacius, Comm. p. 422).

M. Barthélemy St. Hilaire observes (Note, p. 82):—"La cause éloignée non immédiate, donne un syllogisme dans la seconde figure.—Il est vrai qu'Aristote n'appelle cause que la cause immédiate; et que la cause éloignée n'est pas pour lui une véritable cause."

See in Schol. p. 188, a. 19, the explanation given by Alexander of the syllogism τοῦ διότι.

[a] Analyt. Post. I. xiii. p. 79, a. 2, seq.: ἐνταῦθα γὰρ τὸ μὲν ὅτι τῶν αἰσθητικῶν εἰδέναι, τὸ δὲ διότι τῶν μαθηματικῶν. &c. Compare Analyt. Prior. II. xxi. p. 67, a. 11; and Metaphys. A. p. 981, a. 15.

[b] Analyt. Post. I. xiv. p. 79, a. 17-32.

[c] Ibid. I. xv. p. 79, a. 33-b. 22. The point which Aristotle here especially insists upon is, that there may be and are immediate, undemonstrable, *negative* (as well as affirmative) predicates: φανερὸν οὖν ὅτι ἐνδέχεταί τε ἄλλο ἄλλῳ μὴ ὑπάρχειν ἀτόμως. (Themistius, Paraphr. p. 48, Spengel: ἄμεσοι δὲ προτάσεις οὐ καταφάσεις μόνον εἰσίν, ἀλλὰ καὶ ἀποφάσεις ὁμοίως αἳ μὴ δύνανται διὰ συλλογισμοῦ δειχθῆναι, αὗται δ' εἰσὶν ἐφ' ὧν οὐδετέρου τῶν ὅρων ἄλλος τις ὅλου κατηγορεῖται.) It had been already shown, in an earlier chapter of this treatise (p. 72, b. 19), that there were *affirmative* predicates immediate and undemonstrable. This may be compared with that which Plato declares in the Sophistes (pp. 253-254, seq.) about the intercommunion τῶν γενῶν καὶ τῶν εἰδῶν with each other. Some of them admit such intercommunion, others repudiate it.

In regard both to these propositions immediate and indivisible, and to propositions mediate and deducible, there are two varieties of error.[a] You may err simply, from ignorance, not knowing better, and not supposing yourself to know at all; or your error may be a false conclusion, deduced by syllogism through a middle term, and accompanied by a belief on your part that you do know. This may happen in different ways. Suppose the negative proposition, No B is A, to be true immediately or indivisibly. Then, if you conclude the contrary of this[b] (All B is A) to be true, by syllogism through the middle term C, your syllogism must be in the First figure; it must have the minor premiss false (since B is brought under C, when it is not contained in any higher genus), and it may have both premisses false. Again, suppose the affirmative proposition, All B is A, to be true immediately or indivisibly. Then if you conclude the contrary of this (No B is A) to be true, by syllogism through the middle term C, your syllogism may be in the First figure, but it may also be in the Second figure, your false conclusion being negative. If it be in the First figure, both its premisses may be false, or one of them only may be false, either indifferently.[c] If it be in the Second figure, either premiss singly may be wholly false, or both may be partly false.[d]

Let us next assume the affirmative proposition, All B is A to be true, but mediate and deducible through the middle term C. If you conclude the contrary of this (No B is A) through the same middle term C, in the First figure, your error cannot arise from falsity in the minor premiss, because your minor (by the laws of the figure) must be affirmative; your error must arise from a false major, because a negative major is not inconsistent with the laws of the First figure. On the other hand, if you conclude the contrary in the First figure through a different

[a] Analyt. Post. I. xvi. p. 79, b. 23: ἄγνοια κατ' ἀπόφασιν—ἄγνοια κατὰ διάθεσιν. See Themistius, p. 49, Spengel. In regard to simple and uncombined ideas, ignorance is not possible as an erroneous combination, but only as a mental blank. You either have the idea and thus know so much truth, or you have not the idea and are thus ignorant to that extent; this is the only alternative. Cf. Aristot. Metaph. Θ. p. 1051, a. 34; De Animâ, III. vi. p. 430, a. 26.

[b] Analyt. Post. I. xvi. p. 79, b. 29. M. Barthélemy St. Hilaire remarks (p. 95, n.):—"Il faut remarquer qu'Aristote ne s'occupe que des modes universels dans la première et dans la seconde figure, parce-que, la démonstration étant toujours universelle, les propositions qui expriment l'erreur opposée doivent l'être comme elle. Ainsi ce sont les propositions contraires, et non les contradictoires, dont il sera question ici."

For the like reason the Third figure is not mentioned here, but only the First and Second: because in the Third figure no universal conclusion can be proved (Julius Pacius, p. 431).

[c] Analyt. Post. I. xvi. p. 80, a. 6-26.

[d] Ibid. a. 27-b. 14: ἐν δὲ τῷ μέσῳ σχήματι ὅλας μὲν εἶναι τὰς προτάσεις ἀμφοτέρας ψευδεῖς οὐκ ἐνδέχεται—ἐπί τι δ' ἑκατέραν οὐδὲν κωλύει ψευδῆ εἶναι.

middle term, D, either both your premisses will be false, or your minor premiss will be false.[a] If you employ the Second figure to conclude your contrary, both your premisses cannot be false, though either one of them singly may be false.[b]

Such will be the case when the deducible proposition assumed to be true is affirmative, and when therefore the contrary conclusion which you profess to have proved is negative. But if the deducible proposition assumed to be true is negative, and if consequently the contrary conclusion must be affirmative,—then, if you try to prove this contrary through the same middle term, your premisses cannot both be false, but your major premiss must always be false.[c] If, however, you try to prove the contrary through a different and inappropriate middle term, you cannot convert the minor premiss to its contrary (because the minor premiss must continue affirmative, in order that you may arrive at any conclusion at all), but the major can be so converted. Should the major premiss thus converted be true, the minor will be false; should the major premiss thus converted be false, the minor may be either true or false. Either one of the premisses, or both the premisses, may thus be false.[d]

Errors of simple ignorance (not concluded from false syllogism) may proceed from defect or failure of sensible perception, in one or other of its branches. For without sensation there can be no induction; and it is from induction only that the premisses for demonstration by syllogism are obtained. We cannot arrive at universal propositions, even in what are called abstract sciences, except through induction of particulars; nor can we demonstrate except from universals. Induction and Demonstration are the only two ways of learning; and the particulars composing our inductions can only be known through sense.[e]

Aristotle next proceeds to show (what in previous passages he

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[a] Analyt. Post. I. xvi. p. 80, b. 17-p. 81, a. 4.

[b] Ibid. p. 81, a. 5-14.

[c] Ibid. xvii. p. 81, a. 15-20.

[d] Ibid. a. 20-34. Mr. Poste's translation (pp. 65-70 is very perspicuous and instructive in regard to these two difficult chapters.

[e] Analyt. Post. I. xviii. p. 81, a. 38-b. 9. In this important chapter (the doctrines of which are more fully expanded in the last chapter of the Second Book of the Analyt. Post.), the text of Waitz does not fully agree with that of Julius Pacius. In Firmin Didot's edition the text is the same as in Waitz; but his Latin translation remains adapted to that of Julius Pacius. Waitz gives the substance of the chapter as follows (ad Organ. II. p. 347):—"Universales propositiones omnes inductione comparantur, quum etiam in iis, quæ a sensibus maxime aliena videntur et quæ, ut mathematica (τὰ ἐξ ἀφαιρέσεως), cogitatione separantur à materia quacum conjuncta sunt, inductione probentur ea quæ de genere (e. g., de linea vel de corpore mathematico), ad quod demonstratio pertineat, prædicentur καθ' αὑτά et cum ejus natura conjuncta sint. Inductio autem iis nititur quæ sensibus percipiuntur; nam res singulares sentiuntur, scientia vero rerum singularium non datur sine inductione, non datur inductio sine sensu."

had assumed)[a] that, if Demonstration or the syllogistic process be possible—if there be any truths supposed demonstrable, this implies that there must be primary or ultimate truths. It has been explained that the constituent elements assumed in the Syllogism are three terms and two propositions or premisses; in the major premiss, A is affirmed (or denied) of all B; in the minor, B is affirmed of all C; in the conclusion, A is affirmed (or denied) of all C.[b] Now it is possible that there may be some one or more predicates higher than A, but it is impossible that there can be an infinite series of such higher predicates. So also there may be one or more subjects lower than C, and of which C will be the predicate; but it is impossible that there can be an infinite series of such lower subjects. In like manner there may perhaps be one or more middle terms between A and B, and between B and C; but it is impossible that there can be an infinite series of such intervening middle terms. There must be a limit to the series ascending, descending, or intervening.[c] These remarks have no application to reciprocating propositions, in which the predicate is co-extensive with the subject.[d] But they apply alike to demonstrations negative and affirmative, and alike to all the three figures of Syllogism.[e]

In Dialectical Syllogism it is enough if the premisses be admitted or reputed as propositions immediately true, whether they are so in reality or not; but in Scientific or Demonstrative Syllogism they must be so in reality: the demonstration is not complete unless it can be traced up to premisses that are thus immediately or directly true (without any intervening middle term).[f] That there are and must be such primary or immediate premisses, Aristotle now undertakes to prove, by some dialectical reasons, and other analytical or scientific reasons.[g] He himself

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[a] Analyt. Prior. I. xxvii. p. 43, a. 38; Analyt. Post. I. ii. p. 71, b. 21.

[b] Analyt. Post. I. xix. p. 81, b. 10-17.

[c] Ibid. p. 81, b. 30-p. 82 a. 14.

[d] Ibid. p. 82, a. 15-20. M. Barthélemy St. Hilaire, p. 117:—"Ceci ne saurait s'appliquer aux termes réciproques, parce que dans les termes qui peuvent être attribués réciproquement l'un à l'autre, on ne peut pas dire qu'il y ait ni premier ni dernier rélativement à l'attribution."

[e] Analyt. Post. I. xx., xxi. p. 82, a. 21-b. 36.

[f] Ibid. xix. p. 81, b. 18-29.

[g] Ibid. xxi. p. 82, b. 35; xxii. p. 84, a. 7: *λογικῶς μὲν οὖν ἐκ τούτων ἄν τις πιστεύσειε περὶ τοῦ λεχθέντος, ἀναλυτικῶς δὲ διὰ τῶνδε φανερὸν συντομώτερον.* In Scholia, p. 227, a. 42, the same distinction is expressed by Philoponus in the terms *λογικώτερα* and *πραγματωδέστερα*. Compare Biese, Die Philosophie des Aristoteles, pp. 134, 261; Rassow, De Notionis Definitione, pp. 19, 20; Heyder, Aristot. u. Hegel. Dialektik, pp. 316, 317.

Aristotle, however, does not always adhere closely to the distinction. Thus, if we compare the *logical* or *dialectical* reasons given, p. 82, b. 37, seq., with the *analytical*, announced as beginning p. 84, a. 8, seq., we find the same main topic dwelt upon in both, namely, that to admit an infinite series excludes the possibility of Definition. Both Alexander and Ammonius agree in announcing this as the capital topic on which the proof turned; but Alexander inferred from hence that

thus distinguishes them; but the distinction is faintly marked, and amounts, at most, to this, that the analytical reasons advert only to essential predication, and to the conditions of scientific demonstration, while the dialectical reasons dwell upon these, but include something else besides, viz., accidental predication. The proof consists mainly in the declaration that, unless we assume some propositions to be true immediately, indivisibly, undemonstrably,—Definition, Demonstration, and Science would be alike impossible. If the ascending series of predicates is endless, so that we never arrive at a highest generic predicate; if the descending series of subjects is endless, so that we never reach a lowest subject,—no definition can ever be attained. The essential properties included in the definition, must be finite in number; and the accidental predicates must also be finite in number, since they have no existence except as attached to some essential subject, and since they must come under one or other of the nine later Categories.[a] If, then, the two extremes are thus fixed and finite—the highest predicate and the lowest subject—it is impossible that there can be an infinite series of terms between the two. The intervening terms must be finite in number. The Aristotelian theory therefore is, that there are certain propositions directly and immediately true, and others derived from them by demonstration through middle terms.[b] It is alike an error to assert that every thing can be demonstrated, and that nothing can be demonstrated.

It is plain from Aristotle's own words[c] that he intended these four chapters (xix.-xxii.) as a confirmation of what he had already asserted in chapter iii. of the present treatise, and as farther refutation of the two distinct classes of opponents there indicated: (1) those who said that everything was demonstrable, demonstration in a circle being admissible; (2) those who said that nothing was demonstrable, inasmuch as the train of predi-

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the argument was purely *dialectical* (λογικὸν ἐπιχείρημα), while Ammonius regarded it as a reason thoroughly convincing and evident: ὁ μέντοι φιλόσοφος (Ammonius) ἔλεγε μὴ διὰ τοῦτο λέγειν λογικὰ τὰ ἐπιχειρήματα· ἐναργὲς γὰρ ὅτι εἰσὶν ὁρισμοί, εἰ μὴ ἀκαταληψίαν εἰσαγάγωμεν (Schol. p 227, a. 40, seq , Brand.).

[a] Analyt. Post. I. xxii. p. 83, a. 20, b. 14. Only eight of the ten Categories are here enumerated.

[b] Ibid, I. xxii. p. 84, a. 30-35. The paraphrase of Themistius (pp. 55-58, Spengel) states the Aristotelian reasoning in clearer language than Aristotle himself. Zabarella (Comm. in Analyt. Post. I. xviii.; context. 148, 150, 154) repeats that Aristotle's proof is founded upon the undeniable fact that there *are* definitions, and that without them there could be no demonstration and no science. This excludes the supposition of an infinite series of predicates and of middle terms: "Sumit rationem à definitione; si in *predicatis in quid* procederetur ad infinitum, sequeretur auferri definitionem et omnino essentiæ cognitionem; sed hoc dicendum non est, quum omnium consensioni adversetur" (p. 466, Ven. 1617).

[c] Analyt. Post. I. xxii. p. 84, a. 32: ὅπερ ἔφαμέν τινας λέγειν κατ' ἀρχάς, &c.

cation upwards, downwards, and intermediate, was infinite. Both these two classes of opponents agreed in saying, that there were no truths immediate and indemonstrable; and it is upon this point that Aristotle here takes issue with them, seeking to prove that there are and must be such truths. But I cannot think the proof satisfactory; nor has it appeared so to able commentators either of ancient or modern times—from Alexander of Aphrodisias down to Mr. Poste.[a] The elaborate amplification

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[a] See Mr. Poste's note, p. 77, of his translation of this treatise. After saying that the first of Aristotle's *dialectical* proofs is faulty, and that the second is a *petitio principii*, Mr. Poste adds, respecting the so-called *analytical* proof given by Aristotle:—"It is not so much a proof, as a more accurate determination of the principle to be postulated. This postulate, the existence of first principles, as concerning the constitution of the world, appears to belong properly to Metaphysics, and is merely borrowed by Logic. See Metaph. ii. 2, and Introduction." In the passage of the Metaphysica (α. p. 994) here cited the main argument of Aristotle is open to the same objection of *petitio principii* which Mr. Poste urges against Aristotle's second *dialectical* argument in this place.

Mr. John Stuart Mill, in his System of Logic, takes for granted that there *must* be immediate, indemonstrable truths, to serve as a basis for deduction; "that there cannot be a chain of proof suspended from nothing;" that there must be ultimate laws of nature, though we cannot be sure that the laws now known to us are ultimate.

On the other hand, we read in the recent work of an acute contemporary philosopher, Professor Delbœuf (Essai de Logique Scientifique, Liège, 1865, Pref. pp. v, vii, viii, pp. 46, 47:)—"Il est des points sur lesquels je crains de ne m'être pas expliqué assez nettement, entre autres la question du fondement de la certitude. Je suis de ceux qui repoussent de toutes leurs forces l'axiome si spécieux qu'on ne peut tout démontrer; cette proposition aurait, à mes yeux, plus besoin que toute autre d'une démonstration. Cette démonstration ne sera en partie donnée que quand on aura une bonne fois énuméré toutes les propositions indémontrables; et quand on aura bien défini le caractère auquel on les reconnait. Nulle part on ne trouve ni une semblable énumération, ni une semblable définition. On reste à cet égard dans une position vague, et par cela même facile à défendre."

It would seem, by these words, that M. Delbœuf stands in the most direct opposition to Aristotle, who teaches us that the ἀρχαὶ or *principia* from which demonstration starts cannot be themselves demonstrated. But when we compare other passages of M. Delbœuf's work, we find that, in rejecting all undemonstrable propositions, what he really means is to reject all *self-evident universal truths*. "C'est donc une véritable illusion d'admettre des vérités évidentes par elles-mêmes. Il n'y a pas de proposition fausse que nous ne soyons disposés d'admettre comme axiome, quand rien ne nous a encore autorisés à la repousser" (p. ix.). This is quite true in my opinion; but the immediate indemonstrable truths for which Aristotle contends as ἀρχαὶ of demonstration, are not announced by him as *self-evident*, they are declared to be results of sense and induction, to be raised from observation of particulars multiplied, compared, and permanently formularized under the intellectual *habitus* called Νοῦς. By Demonstration Aristotle means deduction in its most perfect form, beginning from these ἀρχαὶ which are inductively known but not demonstrable (*i.e.* not knowable deductively). And in this view the very able and instructive treatise of M. Delbœuf mainly coincides, assigning even greater preponderance to the inductive process, and approximating in this respect to the important improvements in logical theory advanced by Mr. John Stuart Mill.

Among the universal propositions which are not derived from Induction, but which serve as ἀρχαὶ for Deduction and Demonstration, we may reckon the religious, ethical, æsthetical, social, political, &c., beliefs received in each different community, and impressed upon all new-comers born into it by the force of precept, example, authority. Here the major premiss is felt by each individual as carrying an authority of its own, stamped and enforced by the sanction of society, and by the disgrace or other penalties in store for those who disobey it. It is ready to be interpreted and diversified by suitable minor premisses in all in-

added in these last chapters adds no force to the statement already given at the earlier stage; and it is in one respect a change for the worse, inasmuch as it does not advert to the important distinction announced in chapter iii., between universal truths known by Induction (from sense and particulars), and universal truths known by Deduction from these. The truths immediate and indemonstrable (not known through a middle term) are the inductive truths, as Aristotle declares in many places, and most emphatically at the close of the Analytica Posteriora. But in these chapters, he hardly alludes to Induction. Moreover, while trying to prove that there must be immediate universal truths, he neither gives any complete list of them, nor assigns any positive characteristic whereby to identify them. Opponents might ask him whether these immediate universal truths were not ready-made inspirations of the mind; and if so, what better authority they had than the Platonic Ideas, which are contemptuously dismissed.

We have thus recognized that there exist immediate (ultimate or primary) propositions, wherein the conjunction between predicate and subject is such that no intermediate term can be assigned between them. When A is predicated both of B and C, this may perhaps be in consequence of some common property possessed by B and C, and such common property will form a middle term. For example, equality of angles to two right angles belongs both to an isosceles and to a scalene triangle, and it belongs to them by reason of their common property—triangular figure; which last is thus the middle term. But this need not be always the case.[a] It is possible that the two propositions—A predicated of B, A predicated of C—may both of them be immediate propositions; and that there may be no community of nature between B and C. Whenever a middle term can be found, demonstration is possible; but where no middle term can be found, demonstration is impossible. The proposition, whether affirmative or negative, is then an immediate or indivisible one. Such propositions, and the terms of which they are composed, are the ultimate elements or *principia* of Demonstration. Predicate and subject are brought constantly into closer and closer conjunction, until at last they become one and indivisible.[b] Here we reach the unit or element

ferential applications. But these ἀρχαὶ for deduction, differing widely at different times and places, though generated in the same manner and enforced by the same sanction, would belong more properly to the class which Aristotle terms τὰ ἔνδοξα.

[a] Analyt. Post. I. xxiii. p. 84, b. 3-18. τοῦτο δ' οὐκ ἀεὶ οὕτως ἔχει.

[b] Ibid. b. 25-37: ἀεὶ τὸ μέσον πυκνοῦται,

of the syllogizing process. In all scientific calculations there is assumed an unit to start from, though in each branch of science it is a different unit; *e.g.* in barology, the pound-weight; in harmonics, the quarter-tone; in other branches of science, other units.[a] Analytical research teaches us that the corresponding unit in Syllogism is the affirmative or negative proposition which is primary, immediate, indivisible. In Demonstration and Science it is the Noûs or Intellect.[b]

Having thus, in the long preceding reasoning, sought to prove that all demonstration must take its departure from primary undemonstrable *principia*—from some premisses, affirmative and negative, which are directly true in themselves, and not demonstrable through any middle term or intervening propositions, Aristotle now passes to a different enquiry. We have some demonstrations in which the conclusion is Particular, others in which it is Universal: again, some Affirmative, some Negative. Which of the two, in each of these alternatives, is the best? We have also demonstrations Direct or Ostensive, and demonstrations Indirect or by way of *Reductio ad Absurdum*. Which of these two is the best? Both questions appear to have been subjected to debate by contemporary philosophers.[c]

Aristotle discusses these points dialectically (as indeed he points out in the Topica that the comparison of two things generally, as to better and worse, falls under the varieties of dialetical enquiry[d]), first stating and next refuting the arguments on the weaker side. Some persons may think (he says) that demonstration of the Particular is better than demonstration of the Universal: first, because it conducts to fuller cognition of that which the thing is in itself, and not merely that which it is *quatenus* member of a class; secondly, because demonstrations of the Universal are apt to generate an illusory belief, that the Universal is a distinct reality apart from and independent of all its particulars (*i.e.*, that figure in general has a real existence apart from all particular figures, and number in general apart from all particular numbers, &c.), while demonstrations of the Particular do not lead to any such illusion.[e]

ἕως ἀδιαίρετα γένηται καὶ ἕν. ἔστι δ' ἕν, ὅταν ἄμεσον γένηται καὶ μία πρότασις ἁπλῶς ἡ ἄμεσος.

[a] Analyt. Post. I. xxiii. p. 84, b. 37: καὶ ὥσπερ ἐν τοῖς ἄλλοις ἡ ἀρχὴ ἁπλοῦν, τοῦτο δ' οὐ ταὐτὸ πανταχοῦ, ἀλλ' ἐν βαρεῖ μὲν μνᾶ, ἐν δὲ μέλει δίεσις, ἄλλο δ' ἐν ἄλλῳ, οὕτως ἐν συλλογισμῷ τὸ ἓν πρότασις ἄμεσος, ἐν δ' ἀποδείξει και ἐπιστήμῃ ὁ νοῦς.

[b] Ibid. b. 35-p. 85, a. 1.

[c] Ibid. xxiv. p. 85, a. 13-18. ἀμφισβητεῖται ποτέρα βελτίων· ὡς δ' αὔτως καὶ περὶ τῆς ἀποδεικνύναι λεγομένης καὶ τῆς εἰς τὸ ἀδύνατον ἀγούσης ἀποδείξεως.

[d] Aristot. Topic. III. i. p. 116, a. 1, seq.

[e] Analyt. Post. I. xxiv. p. 85, a. 20-b. 3. Themistius, pp. 58-59, Spengel: οὐ γὰρ ὁμώνυμον τὸ καθόλου ἐστίν, οὐδὲ φωνὴ μόνον, ἀλλ' ὑπόστασις, οὐ χωριστὴ μὲν ὥσπερ οὐδὲ τὰ συμβεβηκότα, ἐναργῶς δ' οὖν

To these arguments Aristotle replies:—1. It is not correct to say that cognition of the Particular is more complete, or bears more upon real existence, than cognition of the Universal. The reverse would be nearer to the truth. To know that the isosceles, *quatenus* triangle, has its three angles equal to two right angles, is more complete cognition than knowing simply that the isosceles has its three angles equal to two right angles. 2. If the Universal be not an equivocal term—if it represents one property and one definition common to many particulars, it then has a real existence as much or more than any one or any number of the particulars. For all these particulars are perishable, but the class is imperishable. 3. He who believes that the universal term has one meaning in all the particulars, need not necessarily believe that it has any meaning *apart* from all particulars; he need not believe this about Quiddity, any more than he believes it about Quality or Quantity. Or if he does believe so, it is his own individual mistake, not imputable to the demonstration. 4. We have shown that a complete demonstration is one in which the middle term is the cause or reason of the conclusion. Now the Universal is most of the nature of Cause; for it represents the First Essence or the *Per Se*, and is therefore its own cause, or has no other cause behind it. The demonstration of the Universal has thus more of the Cause or the *Why*, and is therefore better than the demonstration of the Particular. 5. In the Final Cause or End of action, there is always some ultimate end for the sake of which the intermediate ends are pursued, and which, as it is better than they, yields, when it is known, the only complete explanation of the action. So it is also with the Formal Cause: there is one highest form which contains the *Why* of the subordinate forms, and the knowledge of which is therefore better; as when, for example, the exterior angles of a given isosceles triangle are seen to be equal to four right angles, not because it is isosceles or triangle, but because it is a rectilineal figure. 6. Particulars, as such, fall into infinity of number, and are thus unknowable; the Universal tends towards oneness and simplicity, and is thus essentially knowable, more fully demonstrable than the infinity of particulars. The demonstration thereof is therefore better. 7. It is also better, on another ground; for he that knows the Universal does in a certain sense know also the Particular;[a] but he that knows the Particular cannot be said in any sense to

ἐμφαινομένη τοῖς πράγμασιν. The Scholastic doctrine of *Universalia in re* is here expressed very clearly by Themistius.

[a] Compare Analyt. Post. I. i. p. 71, a. 25; also Metaphys. A. p. 981, a. 12.

know the Universal. 8. The *principium* or perfection of cognition is to be found in the immediate proposition, true *per se*. When we demonstrate, and thus employ a middle term, the nearer the middle term approaches to that *principium*, the better the demonstration is. The demonstration of the Universal is thus better and more accurate than that of the Particular.[a]

Such are the several reasons enumerated by Aristotle in refutation of the previous opinion stated in favour of the Particular. Evidently he does not account them all of equal value: he intimates that some are purely dialectical (λογικά); and he insists most upon the two following:—1. He that knows the Universal knows in a certain sense the Particular; if he knows that every triangle has its three angles equal to two right angles, he knows potentially that the isosceles has its three angles equal to the same, though he may not know as yet that the isosceles *is* a triangle. But he that knows the Particular does not in any way know the Universal, either actually or potentially.[b] 2. The Universal is apprehended by Intellect or Νοῦς, the highest of all cognitive powers; the Particular terminates in sensation. Here, I presume, he means, that, in demonstration of the Particular, the conclusion teaches you nothing more than you might have learnt from a direct observation of sense; whereas in that of the Universal the conclusion teaches you more than you could have learnt from direct sensation, and comes into correlation with the highest form of our intellectual nature.[c]

Next, Aristotle compares the Affirmative with the Negative demonstration, and shows that the Affirmative is the better. Of two demonstrations (he lays it down) that one which proceeds upon a smaller number of postulates, assumptions, or propositions, is better than the other; for, to say nothing of other reasons, it conducts you more speedily to knowledge than the other, and that is an advantage. Now, both in the affirmative and in the negative syllogism, you must have three terms and two propositions; but in the affirmative you assume only that something *is*; while in the negative you assume both that something *is*, and that something *is not*. Here is a double assumption instead of a single; therefore the negative is the worse or

[a] Analyt. Post. I. xxiv. p. 85, b. 4-p. 86, a. 21. Schol. p. 233, b. 6: *ὁμοίως δὲ ὄντων γνωρίμων, ἡ δι' ἐλαττόνων μέσων αἱρετωτέρα· μᾶλλον γὰρ ἐγγυτέρω τῆς τοῦ νοῦ ἐνεργείας.*

[b] Analyt. Post. I. xxiv. p. 86. a. 22: *ἀλλὰ τῶν μὲν εἰρημένων ἔνια λογικά ἐστι· μάλιστα δὲ δῆλον ὅτι ἡ καθόλου κυριωτέρα, ὅτι—ὁ δὲ ταύτην ἔχων τὴν πρότασιν* (the Particular) *τὸ καθόλου οὐδαμῶς οἶδεν, οὔτε δυνάμει οὔτ' ἐνεργείᾳ.*

[c] Ibid. a. 29: *καὶ ἡ μὲν καθόλου νοητή, ἡ δὲ κατὰ μέρος εἰς αἴσθησιν τελευτᾷ.* Compare xxiii. p. 84, b. 39, where we noticed the doctrine that Νοῦς is the *unit* of scientific demonstration.

inferior of the two.[a] Moreover, for the demonstration of a negative conclusion, you require one affirmative premiss (since from two negative premisses nothing whatever can be concluded); while for the demonstration of an affirmative conclusion, you must have two affirmative premisses, and you cannot admit a negative. This, again, shows that the affirmative is logically prior, more trustworthy, and better than the negative.[b] The negative is only intelligible and knowable through the affirmative, just as *Non-Ens* is knowable only through *Ens*. The affirmative demonstration therefore, as involving better principles, is, on this ground also, better than the negative.[c] *A fortiori*, it is also better than the demonstration by way of *Reductio ad Absurdum*, which was the last case to be considered. This, as concluding only indirectly and from impossibility of the contradictory, is worse even than the negative; much more therefore is it worse than the direct affirmative.[d]

If we next compare one Science with another, the prior and more accurate of the two is, (1) That which combines at once the *ὅτι* and the *διότι*; (2) That which is abstracted from material conditions, as compared with that which is immersed therein —for example, arithmetic is more accurate than harmonics; (3) The more simple as compared with the more complex: thus, arithmetic is more accurate than geometry, a monad or unit is a substance without position, whereas a point (more concrete) is a substance with position.[e] One and the same science is that which belongs to one and the same generic subject-matter. The premisses of a demonstration must be included in the same genus with the conclusion; and where the ultimate premisses are heterogeneous, the cognition derived from them must be considered as not one but a compound of several.[f] You may find two or more distinct middle terms for demonstrating the same conclusion; sometimes out of the same logical series or table, sometimes out of different tables.[g]

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[a] Analyt. Post. I. xxv. p. 86, a. 31-b. 9.

[b] Ibid. b. 10-30.

[c] Ibid. b. 30-39.

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Philoponus says (Schol. pp. 234-235. Brand.) that the Commentators all censured Aristotle for the manner in which he here laid out the Syllogism *δι' ἀδυνάτου*. I do not, however, find any such censure in Themistius. Philoponus defends Aristotle from the censure.

[e] Analyt. Post. I. xxvii. p. 87, a. 31-37. Themistius, Paraphras. p. 60, ed. Speng.: *κατ' ἄλλον δὲ (τρόπον), ἐὰν ἡ μὲν περὶ ὑποκείμενά τινα καὶ αἰσθητὰ πραγματεύηται, ἡ δὲ περὶ νοητὰ καὶ καθόλου.*

Philoponus illustrates this (Schol. p. 235, b. 41, Br.): *οἷον τὰ Θεοδοσίου σφαιρικὰ ἀκριβέστερά ἐστιν ἐπιστήμῃ τῆς τῶν Αὐτολύκου περὶ κινουμένης σφαίρας.* &c.

[f] Analyt. Post. I. xxviii. p. 87, a. 38 b. 5. Themistius, p. 61: *δῆλον δὲ τοῦτο γίνεται προϊοῦσιν ἐπὶ τὰς ἀναποδείκτους ἀρχάς· αὗται γὰρ εἰ μηδεμίαν ἔχοιεν συγγένειαν, ἕτεραι αἱ ἐπιστῆμαι.*

[g] Analyt. Post. I. xxix. p. 87, b. 5-18. Aristotle gives an example to illustrate

There cannot be demonstrative cognition of fortuitous events,[a] for all demonstration is either of the necessary or of the customary. Nor can there be demonstrative cognition through sensible perception. For though by sense we perceive a thing as such and such (through its sensible qualities), yet we perceive it inevitably as *hoc aliquid, hic, et nunc*. But the Universal cannot be perceived by sense; for it is neither *hic* nor *nunc*, but *semper et ubique*.[b] Now demonstrations are all accomplished by means of the Universal, and demonstrative cognition cannot therefore be had through sensible perception. If the equality of the three angles of a triangle to two right angles were a fact directly perceivable by sense, we should still have looked out for a demonstration thereof: we should have no proper scientific cognition of it (though some persons contend for this): for sensible perception gives us only particular cases, and Cognition or Science proper comes only through knowing the Universal.[c] If, being on the surface of the moon, we had on any one occasion seen the earth between us and the sun, we could not have known from that single observation that such interposition is the cause universally of eclipses. We cannot directly by sense perceive the Universal, though sense is the *principium* of the Universal. By multiplied observation of sensible particulars, we can hunt out and elicit the Universal, enunciate it clearly and separately, and make it serve for demonstration.[d] The Universal is precious, because it reveals the Cause or *διότι*, and is therefore more precious, not merely than sensible observation, but also than intellectual conception of the *ὅτι* only, where the Cause or *διότι* lies apart, and is derived from a higher genus. Respecting First Principles or *Summa Genera*, we must speak elsewhere.[e]

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this general doctrine: *τὸ ἥδεσθαι, τὸ κινεῖσθαι, τὸ ἠρεμίζεσθαι, τὸ μεταβάλλειν.* As he includes these terms and this subject among the topics for demonstration, it is difficult to see where he would draw a distinct line between topics for Demonstration and topics for Dialectic.

[a] Analyt. Post. I. xxx. p. 87, b. 19-27.

[b] Ibid. xxxi. p. 87, b. 28: *εἰ γὰρ καὶ ἔστιν ἡ αἴσθησις τοῦ τοιοῦδε καὶ μὴ τοῦδέ τινος, ἀλλ' αἰσθάνεσθαί γε ἀναγκαῖον τόδε τι καὶ ποῦ καὶ νῦν.*

[c] Ibid. b. 35: *δῆλον ὅτι καὶ εἰ ἦν αἰσθάνεσθαι τὸ τρίγωνον ὅτι δυσὶν ὀρθαῖς ἴσας ἔχει τὰς γωνίας, ἐζητοῦμεν ἂν ἀπόδειξιν, καὶ οὐχ (ὥσπερ φασί τινες) ἠπιστάμεθα· αἰσθάνεσθαι μὲν γὰρ ἀνάγκη καθ' ἕκαστον, ἡ δ' ἐπιστήμη τῷ τὸ καθόλου γνωρίζειν ἐστίν.*

Euclid, in the 20th Proposition of his first Book, demonstrates that any two sides of a triangle are together greater than the third side. According to Proklus, the Epikureans derided the demonstration of such a point as absurd; and it seems that some coutemporaries of Aristotle argued in a similar way, judging by the phrase *ὥσπερ φασί τινες.*

[d] Analyt. Post. I. xxxi. p. 88, a. 2: *οὐ μὴν ἀλλ' ἐκ τοῦ θεωρεῖν τοῦτο πολλάκις συμβαῖνον, τὸ καθόλου ἂν θηρεύσαντες ἀπόδειξιν εἴχομεν· ἐκ γὰρ τῶν καθ' ἕκαστα πλειόνων τὸ καθόλου δῆλον.* Themistius, p. 62, Sp.: *ἀρχὴ μὲν λὰρ ἀποδείξεως αἴσθησις, καὶ τὸ καθόλου ἐννοοῦμεν διὰ τὸ πολλάκις αἰσθέσθαι.*

[e] Analyt. Post. I. xxxi. p. 88, a. 6: *τὸ δὲ καθόλου τίμιον, ὅτι δηλοῖ τὸ αἴτιον· ὥστε περὶ τῶν τοιούτων ἡ καθόλου τιμιωτέρα τῶν αἰσθήσεων καὶ τῆς νοήσεως, ὅσων*

inferior of the two.[a] Moreover, for the demonstration of a negative conclusion, you require one affirmative premiss (since from two negative premisses nothing whatever can be concluded); while for the demonstration of an affirmative conclusion, you must have two affirmative premisses, and you cannot admit a negative. This, again, shows that the affirmative is logically prior, more trustworthy, and better than the negative.[b] The negative is only intelligible and knowable through the affirmative, just as *Non-Ens* is knowable only through *Ens*. The affirmative demonstration therefore, as involving better principles, is, on this ground also, better than the negative.[c] *A fortiori*, it is also better than the demonstration by way of *Reductio ad Absurdum*, which was the last case to be considered. This, as concluding only indirectly and from impossibility of the contradictory, is worse even than the negative; much more therefore is it worse than the direct affirmative.[d]

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[a] Analyt. Post. I. xxv. p. 86, a. 31-b. 9.

[b] Ibid. b. 10-30.

[c] Ibid. b. 30-38.

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Themistius, Pamph[illegible] κατ' ἄλλον δὲ [illegible] ὑποκείμενά τινα [illegible] ἡ δὲ περὶ [illegible]

Philop[illegible] 235, b. [illegible]

[e] Analyt. Post. I. xxvii. [illegible]

[illegible]

[illegible]

It is clear, therefore, that no demonstrable matter can be known, properly speaking, from direct perception of sense; though there are cases in which nothing but the impossibility of direct observation drives us upon seeking for demonstration. Whenever we can get an adequate number of sensible observations, we can generalize the fact; and in some instances we may perhaps not seek for any demonstrative knowledge (*i.e.* to explain it by any higher principle). If we could see the pores in glass and the light passing through them, we should learn through many such observations why combustion arises on the farther side of the glass; each of our observations would have been separate and individual, but we should by intellect generalize the result that all the cases fall under the same law.[a]

Aristotle next proceeds to refute, at some length, the supposition, that the *principia* of all syllogisms are the same. We see at once that this cannot be so, because some syllogisms are true, others false. But, besides, though there are indeed a few Axioms essential to the process of demonstration, and the same in all syllogisms, yet these are not sufficient of themselves for demonstration. There must farther be other premisses or matters of evidence—propositions immediately true (or established by prior demonstrations) belonging to each branch of Science specially, as distinguished from the others. Our demonstration relates *to* these special matters or premisses, though it is accomplished *out of* or by means of the common Axioms.[b]

Science or scientific Cognition differs from true Opinion, and the *cognitum* from the *opinatum*, herein, that Science is of the Universal, and through necessary premisses which cannot be otherwise; while Opinion relates to matters true, yet which at the same time may possibly be false. The belief in a proposition which is immediate (*i.e.* undemonstrable) yet not necessary, is Opinion; it is not Science, nor is it Noûs or Intellect—the *principium* of Science or scientific Cognition. Such beliefs are

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ἕτερον τὸ αἴτιον· περὶ δὲ τῶν πρώτων ἄλλος λόγος.

By *τὰ πρῶτα*, he means the *ἀρχαὶ* of Demonstration, which are treated especially in II. xix. See Biese, Die Philos. des Aristoteles, p. 277.

[a] Analyt. Post. I. xxxi. p. 88, a. 9-17. *ἔστι μέντοι ἔνια ἀναγόμενα εἰς αἰσθήσεως ἔκλειψιν ἐν τοῖς προβλήμασιν· ἔνια γὰρ εἰ ἑώρωμεν, οὐκ ἂν ἐζητοῦμεν, οὐχ ὡς εἰδότες τῷ ὁρᾷν, ἀλλ' ὡς ἔχοντες τὸ καθόλου ἐκ τοῦ ὁρᾷν.*

The text of this and the succeeding words seems open to doubt, as well as that of Themistius (p. 63). Waitz in his note (p. 374) explains the meaning clearly:—"non ita quidem ut ipsa sensuum perceptio scientiam afferat; sed ita ut quod in singulis accidere videamus, idem etiam in omnibus accidere conjicientes universe intelligamus."

[b] Analyt. Post. I. xxxii. p. 88, a. 18-b. 29. *αἱ γὰρ ἀρχαὶ διτταί, ἐξ ὧν τε καὶ περὶ ὅ· αἱ μὲν οὖν ἐξ ὧν κοιναί, αἱ δὲ περὶ ὃ ἴδιαι, οἷον ἀριθμός, μέγεθος.* Compare xi. p. 77, a. 27. See Barthélemy St. Hilaire, Plan Général des Derniers Analytiques, p. lxxxi.

fluctuating, as we see every day; we all distinguish them from other beliefs, which we cannot conceive not to be true and which we call cognitions.[a] But may there not be Opinion and Cognition respecting the same matters? There may be (says Aristotle) in different men, or in the same man at different times; but not in the same man at the same time. There may also be, respecting the same matter, true opinion in one man's mind, and false opinion in the mind of another.[b]

With some remarks upon Sagacity, or the power of divining a middle term in a time too short for reflection (as when the friendship of two men is on the instant referred to the fact of their having a common enemy), the present book is brought to a close.[c]

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[a] Analyt. Post. I. xxxiii. p. 88, b. 30-p. 89, a. 10.

[b] Ibid. p. 89, a. 11-b. 6. That eclipse of the sun is caused by the interposition of the moon was to the astronomer Hipparchus scientific Cognition; for he saw that it *could not* be otherwise. To the philosopher Epikurus it was Opinion; for he thought that it *might* be otherwise (Themistius, p. 66, Spengel).

[c] Ibid. xxxiv. p. 89, b. 10-20.

CHAPTER VIII.

ANALYTICA POSTERIORA II.

ARISTOTLE begins the Second Book of the Analytica Posteriora by an enumeration and classification of Problems or Questions suitable for investigation. The matters knowable by us may be distributed into four classes :—

Ὅτι.	Διότι.	Εἰ ἔστι.	Τί ἐστι.
1. Quod.	2. Cur.	3. An sit.	4. Quid sit.

Under the first head come questions of Fact; under the second head, questions of Cause or Reason; under the third, questions of Existence; under the fourth, questions of Essence. Under the first head we enquire, Whether a fact or event is so or so? Whether a given subject possesses this or that attribute, or is in this or that condition? enumerating in the question the various supposable alternatives. Under the second head, we assume the first question to have been affirmatively answered, and we proceed to enquire, What is the cause or reason for such fact, or such conjunction of subject and attribute? Under the third head, we ask, Does a supposed subject exist? And if the answer be in the affirmative, we proceed to enquire, under the fourth head, What is the essence of the subject?[a]

We have here two distinct pairs of *Quæsita:* Obviously the second head presupposes the first, and is consequent thereupon; while the fourth also presupposes the third. But it might seem a more suitable arrangement (as Themistius and other expositors have conceived) that the third and fourth heads should come first in the list, rather than the first and second; since the third and fourth are simpler, and come earlier in the order of philosophical exposition, while the first and second are more complicated, and cannot be expounded philosophically until after

[a] Analyt. Post. II. i. p. 89, b. 23, seq. Themistius observes, p. 67, Speng.: ζητοῦμεν τοίνυν ἢ περὶ ἁπλοῦ τινὸς καὶ ἀσυνθέτου, ἢ περὶ συνθετου καὶ ἐν προτάσει. Themistius has here changed Aristotle's order, and placed the third and fourth heads before the first and second. Compare Schol. p. 240, b. 30; p. 241, a. 18. The Scholiast complains of the enigmatical style of Aristotle: τῇ γριφώδει τοῦ ῥητοῦ ἐπαγγελίᾳ (p. 240, b. 25).

the philosophical exposition of the others. This is cleared up by adverting to the distinction, so often insisted on by Aristotle, between what is first in order of cognition relatively to us (*nobis notiora*), and what is first in order of cognition by nature (*naturâ notiora*). *To us* (that is to men taken individually and in the course of actual growth) the phenomena of nature[a] present themselves as particulars confused and complicated in every way, with attributes essential and accidental implicated together: we gradually learn first to see and compare them as particulars, next to resolve them into generalities, bundles, classes, and partially to explain the *Why* of some by means of others. Here we start from facts embodied in propositions, that include subjects clothed with their attributes. But in the *order of nature* (that is, in the order followed by those who know the *scibile* as a whole, and can expound it scientifically) that which comes first is the Universal or the simple Subject abstracted from its predicates or accompaniments: we have to enquire, first, whether a given subject exists; next, if it does exist, what is its real constituent essence or definition. We thus see the reason for the order in which Aristotle has arranged the two co-ordinate pairs of *Quæsita* or Problems, conformable to the different processes pursued, on the one hand, by the common intellect, growing and untrained—on the other, by the mature or disciplined intellect, already competent for philosophical exposition and applying itself to new *incognita*.

Comparing together these four *Quæsita*, it will appear that in the first and third (*Quod* and *An*), we seek to find out whether there is or is not any middle term. In the second and fourth (*Cur* and *Quid*), we already know or assume that there *is* a middle term; and we try to ascertain what that middle term is.[b] The enquiry *Cur*, is in the main analogous to the enquiry *Quid;* in both cases, we aim at ascertaining what the cause or middle term is. But, in the enquiry *Cur*, what we discover is perhaps some independent fact or event, which is the cause of the event *quæsitum;* while, in the enquiry *Quid*, what we seek is the real

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[a] Schol. Philopon. p. 241, a. 18-24: *τούτων τὸ εἰ ἔστι καὶ τὸ τί ἐστιν εἰσὶν ἁπλᾶ, τὸ δὲ ὅτι καὶ τὸ διότι σύνθετα—πρότερα γὰρ ἡμῖν καὶ γνωριμώτερα τὰ σύνθετα, ὡς τῇ φύσει τὰ ἁπλᾶ.*

Mr. Poste observes upon this quadruple classification by Aristotle (p. 96):—"The two last of these are problems of Inductive, but first principles of Deductive, Science; the one being the hypothesis, the other the definition. The attibute as well as the subject must be defined (I. x.), so that to a certain degree the second problem also is assumed among the principles of Demonstration."

[b] Analyt. Post. II. i. p. 89, b. 37-p. 90, a. 7. *συμβαίνει ἄρα ἐν ἁπάσαις ταῖς ζητήσεσι ζητεῖν ἢ εἰ ἔστι μέσον, ἢ τί ἐστι τὸ μέσον· τὸ μὲν γὰρ αἴτιον τὸ μέσον, ἐν ἅπασι δὲ τοῦτο ζητεῖται.* Compare Schol. p. 241, b. 10, Br.

essence or definition of the substance—the fundamental, generating, immanent cause of its concomitant attributes. Sometimes, however, the *Quid* and the *Cur* are only different ways of stating the same thing. *E.g., Quid est eclipsis lunæ?* Answer: The essence of an eclipse is a privation of light from the moon, through intervention of the earth between her and the sun. *Cur locum habet eclipsis lunæ?* Answer: Because the light of the sun is prevented from reaching the moon by intervention of the earth. Here it is manifest that the answers to the enquiries *Quid* and *Cur* are really and in substance the same fact, only stated in different phrases.[a]

That the *quæsitum* in all these researches is a middle term or medium, is plain from those cases wherein the medium is perceivable by sense; for then we neither require nor enter upon research. For example, if we were upon the moon, we should see the earth coming between us and the sun, now and in each particular case of eclipse. Accordingly, after many such observations, we should affirm the universal proposition, that such intervention of the earth was the cause of eclipses; the universal becoming known to us through induction of particular cases.[b] The middle term, the Cause, the *Quid*, and the *Cur*, are thus all the same enquiry, in substance; though sometimes such *quæsitum* is the quiddity or essential nature of the thing itself (as the essence of a triangle is the cause or ground of its having its three angles equal to two right angles, as well as of its other properties), sometimes it is an extraneous fact.[c]

But how or by what process is this *quæsitum* obtained and made clear? Is it by Demonstration or by Definition? What is Definition, and what matters admit of Definition?[d] Aristotle begins by treating the question dialectically; by setting out a series of doubts and difficulties. First, Is it possible that the same cognition, and in the same relation, can be obtained both by Definition and by Demonstration? No; it is not possible. It is plain that much that is known by Demonstration cannot be known by Definition; for we have seen that conclusions both particular and negative are established by Demonstration (in

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[a] Analyt. Post. II. ii. p. 90, a. 14-23, 31: τὸ τί ἐστιν εἰδέναι ταὐτό ἐστι καὶ διὰ τί ἐστιν.

[b] Ibid. a. 24-30. ἐκ γὰρ τοῦ αἰσθέσθαι καὶ τὸ καθόλου ἐγένετο ἂν ἡμῖν εἰδέναι· ἡ μὲν γὰρ αἴσθησις ὅτι νῦν ἀντιφράττει· καὶ γὰρ δῆλον ὅτι νῦν ἐκλείπει· ἐκ δὲ τούτου τὸ καθόλου ἂν ἐγένετο.

The purport and relation of this quadruple classification of problems is set forth still more clearly in the sixth book of the Metaphysica (Z. p. 1041) with the explanations of Bonitz, Comm. pp. 358, 359.

[c] Analyt. Post. II. ii. p. 90, a. 31.

[d] Ibid. iii. p. 90, a. 37: τί ἐστιν ὁρισμός, καὶ τίνων, εἴπωμεν, διαπορήσαντες πρῶτον περὶ αὐτῶν.

the Third and Second figures), while every Definition is universal and affirmative. But we may go farther and say, that even where a conclusion universal and affirmative is established (in the First figure) by Demonstration, that same conclusion can never be known by Definition; for if it could be known by Definition, it might have been known without Demonstration. Now we are assured, by an uncontradicted induction, that this is not the fact; for that which we know by Demonstration is either a proprium of the subject *per se*, or an accident or concomitant; but no Definition ever declares either the one or the other: it declares only the essence.[a]

Again, let us ask, *vice versâ*, Can everything that is declared by Definition, or indeed anything that is declared by Definition, be known also by Demonstration? Neither is this possible. One and the same *cognitum* can be known only by one process of cognition. Definitions are the *principia* from which Demonstration departs; and we have already shown that in going back upon demonstrations, we must stop somewhere, and must recognize some *principia* undemonstrable.[b] The Definition can never be demonstrated, for it declares only the essence of the subject, and does not predicate anything concerning the subject; whereas Demonstration assumes the essence to be known, and deduces from such assumption an attribute distinct from the essence.[c]

Prosecuting still farther the dialectical and dubitative treatment,[d] Aristotle now proceeds to suggest, that the Essence (that is, the entire Essence or Quiddity), which is declared by Definition, can never be known by Demonstration. To suppose that it could be so known, would be inconsistent with the conditions of the syllogistic proof used in demonstrating. You prove by syllogism, through a middle term, some predicate or attribute; *e.g.*, because A is predicable of all B, and B is predicable of all C, therefore A is predicable of all C. But you cannot prove, through the middle term B, that A is the essence or quiddity

[a] Analyt. Post. II. iii. p. 90, b. 13: ἱκανὴ δὲ πίστις καὶ ἐκ τῆς ἐπαγωγῆς· οὐδὲν γὰρ πώποτε ὁρισάμενοι ἔγνωμεν, οὔτε τῶν καθ' αὑτὸ ὑπαρχόντων οὔτε τῶν συμβεβηκότων. ἔτι εἰ ὁ ὁρισμὸς οὐσίας τις γνωρισμός, τά γε τοιαῦτα φανερὸν ὅτι οὐκ οὐσίαι.

[b] Ibid. b. 18-27.

[c] Ibid. b. 33, seq.: ἔτι πᾶσα ἀπόδειξις τὶ κατά τινος δείκνυσιν, οἷον ὅτι ἔστιν ἢ οὐκ ἔστιν· ἐν δὲ τῷ ὁρισμῷ οὐδὲν ἕτερον ἑτέρου κατηγορεῖται, οἷον οὔτε τὸ ζῷον κατὰ τοῦ δίποδος οὐδὲ τοῦτο κατὰ τοῦ ζῴου—ὁ μὲν οὖν ὁρισμὸς τί ἐστι δηλοῖ, ἡ δὲ ἀπόδειξις ὅτι ἢ ἔστι τόδε κατὰ τοῦδε ἢ οὐκ ἔστιν.

Themistius (p. 71, Speng.) distinguishes the ὁρισμὸς itself from ἡ πρότασις ἡ τὸν ὁρισμὸν κατηγορούμενον ἔχουσα.

[d] Analyt. Post. II. iv. p. 91, a. 12: ταῦτα μὲν οὖν μέχρι τούτου διηπορήσθω. One would think, by these words, that τὸ διαπορεῖν (or the dubitative treatment) finished here. But the fact is not so: that treatment is continued for four chapters more, to the commencement of ch. viii. p. 93.

To these arguments Aristotle replies:—1. It is not correct to say that cognition of the Particular is more complete, or bears more upon real existence, than cognition of the Universal. The reverse would be nearer to the truth. To know that the isosceles, *quatenus* triangle, has its three angles equal to two right angles, is more complete cognition than knowing simply that the isosceles has its three angles equal to two right angles. 2. If the Universal be not an equivocal term—if it represents one property and one definition common to many particulars, it then has a real existence as much or more than any one or any number of the particulars. For all these particulars are perishable, but the class is imperishable. 3. He who believes that the universal term has one meaning in all the particulars, need not necessarily believe that it has any meaning *apart* from all particulars; he need not believe this about Quiddity, any more than he believes it about Quality or Quantity. Or if he does believe so, it is his own individual mistake, not imputable to the demonstration. 4. We have shown that a complete demonstration is one in which the middle term is the cause or reason of the conclusion. Now the Universal is most of the nature of Cause; for it represents the First Essence or the *Per Se*, and is therefore its own cause, or has no other cause behind it. The demonstration of the Universal has thus more of the Cause or the *Why*, and is therefore better than the demonstration of the Particular. 5. In the Final Cause or End of action, there is always some ultimate end for the sake of which the intermediate ends are pursued, and which, as it is better than they, yields, when it is known, the only complete explanation of the action. So it is also with the Formal Cause: there is one highest form which contains the *Why* of the subordinate forms, and the knowledge of which is therefore better; as when, for example, the exterior angles of a given isosceles triangle are seen to be equal to four right angles, not because it is isosceles or triangle, but because it is a rectilineal figure. 6. Particulars, as such, fall into infinity of number, and are thus unknowable; the Universal tends towards oneness and simplicity, and is thus essentially knowable, more fully demonstrable than the infinity of particulars. The demonstration thereof is therefore better. 7. It is also better, on another ground; for he that knows the Universal does in a certain sense know also the Particular;[a] but he that knows the Particular cannot be said in any sense to

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ἐμφαινομένη τοῖς πράγμασιν. The Scholastic doctrine of *Universalia in re* is here expressed very clearly by Themistius.

[a] Compare Analyt. Post. I. i. p. 71, a. 25; also Metaphys. A. p. 981, a. 12.

know the Universal. 8. The *principium* or perfection of cognition is to be found in the immediate proposition, true *per se*. When we demonstrate, and thus employ a middle term, the nearer the middle term approaches to that *principium*, the better the demonstration is. The demonstration of the Universal is thus better and more accurate than that of the Particular.[a]

Such are the several reasons enumerated by Aristotle in refutation of the previous opinion stated in favour of the Particular. Evidently he does not account them all of equal value: he intimates that some are purely dialectical (λογικά); and he insists most upon the two following:—1. He that knows the Universal knows in a certain sense the Particular; if he knows that every triangle has its three angles equal to two right angles, he knows potentially that the isosceles has its three angles equal to the same, though he may not know as yet that the isosceles *is* a triangle. But he that knows the Particular does not in any way know the Universal, either actually or potentially.[b] 2. The Universal is apprehended by Intellect or Νοῦς, the highest of all cognitive powers; the Particular terminates in sensation. Here, I presume, he means, that, in demonstration of the Particular, the conclusion teaches you nothing more than you might have learnt from a direct observation of sense; whereas in that of the Universal the conclusion teaches you more than you could have learnt from direct sensation, and comes into correlation with the highest form of our intellectual nature.[c]

Next, Aristotle compares the Affirmative with the Negative demonstration, and shows that the Affirmative is the better. Of two demonstrations (he lays it down) that one which proceeds upon a smaller number of postulates, assumptions, or propositions, is better than the other; for, to say nothing of other reasons, it conducts you more speedily to knowledge than the other, and that is an advantage. Now, both in the affirmative and in the negative syllogism, you must have three terms and two propositions; but in the affirmative you assume only that something *is*; while in the negative you assume both that something *is*, and that something *is not*. Here is a double assumption instead of a single; therefore the negative is the worse or

[a] Analyt. Post. I. xxiv. p. 85, b. 4-p. 86, a. 21. Schol. p. 233, b. 6: ὁμοίως δὲ ὄντων γνωρίμων, ἡ δι' ἐλαττόνων μέσων αἱρετωτέρα· μᾶλλον γὰρ ἐγγυτέρω τῆς τοῦ νοῦ ἐνεργείας.

[b] Analyt. Post. I. xxiv. p. 86. a. 22: ἀλλὰ τῶν μὲν εἰρημένων ἔνια λογικά ἐστι· μάλιστα δὲ δῆλον ὅτι ἡ καθόλου κυριωτέρα, ὅτι—ὁ δὲ ταύτην ἔχων τὴν πρότασιν (the Particular) τὸ καθόλου οὐδαμῶς οἶδεν, οὔτε δυνάμει οὔτ' ἐνεργείᾳ.

[c] Ibid. a. 29: καὶ ἡ μὲν καθόλου νοητή, ἡ δὲ κατὰ μέρος εἰς αἴσθησιν τελευτᾷ. Compare xxiii. p. 84, b. 39, where we noticed the doctrine that Νοῦς is the *unit* of scientific demonstration.

inferior of the two.[a] Moreover, for the demonstration of a negative conclusion, you require one affirmative premiss (since from two negative premisses nothing whatever can be concluded); while for the demonstration of an affirmative conclusion, you must have two affirmative premisses, and you cannot admit a negative. This, again, shows that the affirmative is logically prior, more trustworthy, and better than the negative.[b] The negative is only intelligible and knowable through the affirmative, just as *Non-Ens* is knowable only through *Ens*. The affirmative demonstration therefore, as involving better principles, is, on this ground also, better than the negative.[c] *A fortiori*, it is also better than the demonstration by way of *Reductio ad Absurdum*, which was the last case to be considered. This, as concluding only indirectly and from impossibility of the contradictory, is worse even than the negative; much more therefore is it worse than the direct affirmative.[d]

If we next compare one Science with another, the prior and more accurate of the two is, (1) That which combines at once the ὅτι and the διότι; (2) That which is abstracted from material conditions, as compared with that which is immersed therein —for example, arithmetic is more accurate than harmonics; (3) The more simple as compared with the more complex: thus, arithmetic is more accurate than geometry, a monad or unit is a substance without position, whereas a point (more concrete) is a substance with position.[e] One and the same science is that which belongs to one and the same generic subject-matter. The premisses of a demonstration must be included in the same genus with the conclusion; and where the ultimate premisses are heterogeneous, the cognition derived from them must be considered as not one but a compound of several.[f] You may find two or more distinct middle terms for demonstrating the same conclusion; sometimes out of the same logical series or table, sometimes out of different tables.[g]

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[a] Analyt. Post. I. xxv. p. 86, a. 31-b. 9.

[b] Ibid. b. 10-30.

[c] Ibid. b. 30-39.

[d] Ibid. I. xxvi. p. 87, a. 2-30. Waitz (II. p. 370), says: "deductio (ad absurdum), quippe quæ per ambages cogat, post ponenda, est demonstrationi rectæ."

Philoponus says (Schol. pp. 234-235. Brand.) that the Commentators all censured Aristotle for the manner in which he here laid out the Syllogism δι' ἀδυνάτου. I do not, however, find any such censure in Themistius. Philoponus defends Aristotle from the censure.

[e] Analyt. Post. I. xxvii. p. 87, a. 31-37. Themistius, Paraphras. p. 60, ed. Speng.: κατ' ἄλλον δὲ (τρόπον), ἐὰν ἡ μὲν περὶ ὑποκείμενά τινα καὶ αἰσθητὰ πραγματεύηται, ἡ δὲ περὶ νοητὰ καὶ καθόλου.

Philoponus illustrates this (Schol. p. 235, b. 41, Br.): οἷον τὰ Θεοδοσίου σφαιρικὰ ἀκριβέστερά ἐστιν ἐπιστήμη τῆς τῶν Αὐτολύκου περὶ κινουμένης σφαίρας. &c.

[f] Analyt. Post. I. xxviii. p. 87, a. 38-b. 5. Themistius, p. 61: δῆλον δὲ τοῦτο γίνεται προϊοῦσιν ἐπὶ τὰς ἀναποδείκτους ἀρχάς· αὗται γὰρ εἰ μηδεμίαν ἔχοιεν συγγένειαν, ἕτεραι αἱ ἐπιστῆμαι.

[g] Analyt. Post. I. xxix. p. 87, b. 5-18. Aristotle gives an example to illustrate

There cannot be demonstrative cognition of fortuitous events,[a] for all demonstration is either of the necessary or of the customary. Nor can there be demonstrative cognition through sensible perception. For though by sense we perceive a thing as such and such (through its sensible qualities), yet we perceive it inevitably as *hoc aliquid, hic, et nunc*. But the Universal cannot be perceived by sense; for it is neither *hic* nor *nunc*, but *semper et ubique*.[b] Now demonstrations are all accomplished by means of the Universal, and demonstrative cognition cannot therefore be had through sensible perception. If the equality of the three angles of a triangle to two right angles were a fact directly perceivable by sense, we should still have looked out for a demonstration thereof: we should have no proper scientific cognition of it (though some persons contend for this): for sensible perception gives us only particular cases, and Cognition or Science proper comes only through knowing the Universal.[c] If, being on the surface of the moon, we had on any one occasion seen the earth between us and the sun, we could not have known from that single observation that such interposition is the cause universally of eclipses. We cannot directly by sense perceive the Universal, though sense is the *principium* of the Universal. By multiplied observation of sensible particulars, we can hunt out and elicit the Universal, enunciate it clearly and separately, and make it serve for demonstration.[d] The Universal is precious, because it reveals the Cause or *διότι*, and is therefore more precious, not merely than sensible observation, but also than intellectual conception of the *ὅτι* only, where the Cause or *διότι* lies apart, and is derived from a higher genus. Respecting First Principles or *Summa Genera*, we must speak elsewhere.[e]

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this general doctrine: *τὸ ἥδεσθαι, τὸ κινεῖσθαι, τὸ ἠρεμίζεσθαι, τὸ μεταβάλλειν.* As he includes these terms and this subject among the topics for demonstration, it is difficult to see where he would draw a distinct line between topics for Demonstration and topics for Dialectic.

[a] Analyt. Post. I. xxx. p. 87, b. 19-27.

[b] Ibid. xxxi. p. 87, b. 28: *εἰ γὰρ καὶ ἔστιν ἡ αἴσθησις τοῦ τοιοῦδε καὶ μὴ τοῦδέ τινος, ἀλλ' αἰσθάνεσθαί γε ἀναγκαῖον τόδε τι καὶ ποῦ καὶ νῦν.*

[c] Ibid. b. 35: *δῆλον ὅτι καὶ εἰ ἦν αἰσθάνεσθαι τὸ τρίγωνον ὅτι δυσὶν ὀρθαῖς ἴσας ἔχει τὰς γωνίας, ἐζητοῦμεν ἂν ἀπόδειξιν, καὶ οὐχ (ὥσπερ φασί τινες) ἠπιστάμεθα· αἰσθάνεσθαι μὲν γὰρ ἀνάγκη καθ' ἕκαστον, ἡ δ' ἐπιστήμη τῷ τὸ καθόλου γνωρίζειν ἐστίν.*

Euclid, in the 20th Proposition of his first Book, demonstrates that any two sides of a triangle are together greater than the third side. According to Proklus, the Epikureans derided the demonstration of such a point as absurd; and it seems that some contemporaries of Aristotle argued in a similar way, judging by the phrase *ὥσπερ φασί τινες.*

[d] Analyt. Post. I. xxxi. p. 88, a. 2: *οὐ μὴν ἀλλ' ἐκ τοῦ θεωρεῖν τοῦτο πολλάκις συμβαῖνον, τὸ καθόλου ἂν θηρεύσαντες ἀπόδειξιν εἴχομεν· ἐκ γὰρ τῶν καθ' ἕκαστα πλειόνων τὸ καθόλου δῆλον.* Themistius, p. 62, Sp.: *ἀρχὴ μὲν λὰρ ἀποδείξεως αἴσθησις, καὶ τὸ καθόλου ἐννοοῦμεν διὰ τὸ πολλάκις αἰσθέσθαι.*

[e] Analyt. Post. I. xxxi. p. 88, a. 6: *τὸ δὲ καθόλου τίμιον, ὅτι δηλοῖ τὸ αἴτιον· ὥστε περὶ τῶν τοιούτων ἡ καθόλου τιμιωτέρα τῶν αἰσθήσεων καὶ τῆς νοήσεως, ὅσων*

It is clear, therefore, that no demonstrable matter can be known, properly speaking, from direct perception of sense; though there are cases in which nothing but the impossibility of direct observation drives us upon seeking for demonstration. Whenever we can get an adequate number of sensible observations, we can generalize the fact; and in some instances we may perhaps not seek for any demonstrative knowledge (*i.e.* to explain it by any higher principle). If we could see the pores in glass and the light passing through them, we should learn through many such observations why combustion arises on the farther side of the glass; each of our observations would have been separate and individual, but we should by intellect generalize the result that all the cases fall under the same law.[a]

Aristotle next proceeds to refute, at some length, the supposition, that the *principia* of all syllogisms are the same. We see at once that this cannot be so, because some syllogisms are true, others false. But, besides, though there are indeed a few Axioms essential to the process of demonstration, and the same in all syllogisms, yet these are not sufficient of themselves for demonstration. There must farther be other premisses or matters of evidence—propositions immediately true (or established by prior demonstrations) belonging to each branch of Science specially, as distinguished from the others. Our demonstration relates *to* these special matters or premisses, though it is accomplished *out of* or by means of the common Axioms.[b]

Science or scientific Cognition differs from true Opinion, and the *cognitum* from the *opinatum*, herein, that Science is of the Universal, and through necessary premisses which cannot be otherwise; while Opinion relates to matters true, yet which at the same time may possibly be false. The belief in a proposition which is immediate (*i.e.* undemonstrable) yet not necessary, is Opinion; it is not Science, nor is it Noûs or Intellect—the *principium* of Science or scientific Cognition. Such beliefs are

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ἕτερον τὸ αἴτιον· περὶ δὲ τῶν πρώτων ἄλλος λόγος.

By *τὰ πρῶτα*, he means the *ἀρχαὶ* of Demonstration, which are treated especially in II. xix. See Biese, Die Philos. des Aristoteles, p. 277.

[a] Analyt. Post. I. xxxi. p. 88, a. 9-17. *ἔστι μέντοι ἔνια ἀναγόμενα εἰς αἰσθήσεως ἔκλειψιν ἐν τοῖς προβλήμασιν· ἔνια γὰρ εἰ ἑώρωμεν, οὐκ ἂν ἐζητοῦμεν, οὐχ ὡς εἰδότες τῷ ὁρᾷν, ἀλλ' ὡς ἔχοντες τὸ καθόλου ἐκ τοῦ ὁρᾷν.*

The text of this and the succeeding words seems open to doubt, as well as that of Themistius (p. 63). Waitz in his note (p. 374) explains the meaning clearly:—"non ita quidem ut ipsa sensuum perceptio scientiam afferat; sed ita ut quod in singulis accidere videamus, idem etiam in omnibus accidere coniicientes universe intelligamus."

[b] Analyt. Post. I. xxxii. p. 88, a. 18-b. 29. *αἱ γὰρ ἀρχαὶ διτταί, ἐξ ὧν τε καὶ περὶ ὅ· αἱ μὲν οὖν ἐξ ὧν κοιναί, αἱ δὲ περὶ ὃ ἴδιαι, οἷον ἀριθμός, μέγεθος.* Compare xi. p. 77, a. 27. See Barthélemy St. Hilaire, Plan Général des Derniers Analytiques, p. lxxxi.

fluctuating, as we see every day; we all distinguish them from other beliefs, which we cannot conceive not to be true and which we call cognitions.[a] But may there not be Opinion and Cognition respecting the same matters? There may be (says Aristotle) in different men, or in the same man at different times; but not in the same man at the same time. There may also be, respecting the same matter, true opinion in one man's mind, and false opinion in the mind of another.[b]

With some remarks upon Sagacity, or the power of divining a middle term in a time too short for reflection (as when the friendship of two men is on the instant referred to the fact of their having a common enemy), the present book is brought to a close.[c]

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[a] Analyt. Post. I. xxxiii. p. 88, b. 30-p. 89, a. 10.

[b] Ibid. p. 89, a. 11-b. 6. That eclipse of the sun is caused by the interposition of the moon was to the astronomer Hipparchus scientific Cognition; for he saw that it *could not* be otherwise. To the philosopher Epikurus it was Opinion; for he thought that it *might* be otherwise (Themistius, p. 66, Spengel).

[c] Ibid. xxxiv. p. 89, b. 10-20.

CHAPTER VIII.

ANALYTICA POSTERIORA II.

ARISTOTLE begins the Second Book of the Analytica Posteriora by an enumeration and classification of Problems or Questions suitable for investigation. The matters knowable by us may be distributed into four classes:—

Ὅτι.	Διότι.	Εἰ ἔστι.	Τί ἐστι.
1. Quod.	2. Cur.	3. An sit.	4. Quid sit.

Under the first head come questions of Fact; under the second head, questions of Cause or Reason; under the third, questions of Existence; under the fourth, questions of Essence. Under the first head we enquire, Whether a fact or event is so or so? Whether a given subject possesses this or that attribute, or is in this or that condition? enumerating in the question the various supposable alternatives. Under the second head, we assume the first question to have been affirmatively answered, and we proceed to enquire, What is the cause or reason for such fact, or such conjunction of subject and attribute? Under the third head, we ask, Does a supposed subject exist? And if the answer be in the affirmative, we proceed to enquire, under the fourth head, What is the essence of the subject?[a]

We have here two distinct pairs of *Quæsita:* Obviously the second head presupposes the first, and is consequent thereupon; while the fourth also presupposes the third. But it might seem a more suitable arrangement (as Themistius and other expositors have conceived) that the third and fourth heads should come first in the list, rather than the first and second; since the third and fourth are simpler, and come earlier in the order of philosophical exposition, while the first and second are more complicated, and cannot be expounded philosophically until after

[a] Analyt. Post. II. i. p. 89, b. 23, seq. Themistius observes, p. 67, Speng.: ζητοῦμεν τοίνυν ἢ περὶ ἁπλοῦ τινὸς καὶ ἀσυνθέτου, ἢ περὶ συνθέτου καὶ ἐν προτάσει. Themistius has here changed Aristotle's order, and placed the third and fourth heads before the first and second. Compare Schol. p. 240, b. 30; p. 241, a. 18. The Scholiast complains of the enigmatical style of Aristotle: τῇ γριφώδει τοῦ ῥητοῦ ἐπαγγελίᾳ (p. 240, b. 25).

the philosophical exposition of the others. This is cleared up by adverting to the distinction, so often insisted on by Aristotle, between what is first in order of cognition relatively to us (*nobis notiora*), and what is first in order of cognition by nature (*naturâ notiora*). *To us* (that is to men taken individually and in the course of actual growth) the phenomena of nature[a] present themselves as particulars confused and complicated in every way, with attributes essential and accidental implicated together: we gradually learn first to see and compare them as particulars, next to resolve them into generalities, bundles, classes, and partially to explain the *Why* of some by means of others. Here we start from facts embodied in propositions, that include subjects clothed with their attributes. But in the *order of nature* (that is, in the order followed by those who know the *scibile* as a whole, and can expound it scientifically) that which comes first is the Universal or the simple Subject abstracted from its predicates or accompaniments: we have to enquire, first, whether a given subject exists; next, if it does exist, what is its real constituent essence or definition. We thus see the reason for the order in which Aristotle has arranged the two co-ordinate pairs of *Quæsita* or Problems, conformable to the different processes pursued, on the one hand, by the common intellect, growing and untrained—on the other, by the mature or disciplined intellect, already competent for philosophical exposition and applying itself to new *incognita*.

Comparing together these four *Quæsita*, it will appear that in the first and third (*Quod* and *An*), we seek to find out whether there is or is not any middle term. In the second and fourth (*Cur* and *Quid*), we already know or assume that there *is* a middle term; and we try to ascertain what that middle term is.[b] The enquiry *Cur*, is in the main analogous to the enquiry *Quid*; in both cases, we aim at ascertaining what the cause or middle term is. But, in the enquiry *Cur*, what we discover is perhaps some independent fact or event, which is the cause of the event *quæsitum*; while, in the enquiry *Quid*, what we seek is the real

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[a] Schl. Philopon. p. 241, a. 18-24: τούτων τὸ εἰ ἔστι καὶ τὸ τί ἐστιν εἰσὶν ἁπλᾶ, τὸ δὲ ὅτι καὶ τὸ διότι σύνθετα—πρότερα γὰρ ἡμῖν καὶ γνωριμώτερα τὰ σύνθετα, ὡς τῇ φύσει τὰ ἁπλᾶ.

Mr. Poste observes upon this quadruple classification by Aristotle (p. 96):—"The two last of these are problems of Inductive, but first principles of Deductive, Science; the one being the hypothesis, the other the definition. The attibute as well as the subject must be defined (I. x.), so that to a certain degree the second problem also is assumed among the principles of Demonstration."

[b] Analyt. Post. II. i. p. 89, b. 37-p. 90, a. 7. συμβαίνει ἄρα ἐν ἁπάσαις ταῖς ζητήσεσι ζητεῖν ἢ εἰ ἔστι μέσον, ἢ τί ἐστι τὸ μέσον· τὸ μὲν γὰρ αἴτιον τὸ μέσον, ἐν ἅπασι δὲ τοῦτο ζητεῖται. Compare Schol. p. 241, b. 10, Br.

essence or definition of the substance—the fundamental, generating, immanent cause of its concomitant attributes. Sometimes, however, the *Quid* and the *Cur* are only different ways of stating the same thing. *E.g.*, *Quid est eclipsis lunæ?* Answer: The essence of an eclipse is a privation of light from the moon, through intervention of the earth between her and the sun. *Cur locum habet eclipsis lunæ?* Answer: Because the light of the sun is prevented from reaching the moon by intervention of the earth. Here it is manifest that the answers to the enquiries *Quid* and *Cur* are really and in substance the same fact, only stated in different phrases.[a]

That the *quæsitum* in all these researches is a middle term or medium, is plain from those cases wherein the medium is perceivable by sense; for then we neither require nor enter upon research. For example, if we were upon the moon, we should see the earth coming between us and the sun, now and in each particular case of eclipse. Accordingly, after many such observations, we should affirm the universal proposition, that such intervention of the earth was the cause of eclipses; the universal becoming known to us through induction of particular cases.[b] The middle term, the Cause, the *Quid*, and the *Cur*, are thus all the same enquiry, in substance; though sometimes such *quæsitum* is the quiddity or essential nature of the thing itself (as the essence of a triangle is the cause or ground of its having its three angles equal to two right angles, as well as of its other properties), sometimes it is an extraneous fact.[c]

But how or by what process is this *quæsitum* obtained and made clear? Is it by Demonstration or by Definition? What is Definition, and what matters admit of Definition?[d] Aristotle begins by treating the question dialectically; by setting out a series of doubts and difficulties. First, Is it possible that the same cognition, and in the same relation, can be obtained both by Definition and by Demonstration? No; it is not possible. It is plain that much that is known by Demonstration cannot be known by Definition; for we have seen that conclusions both particular and negative are established by Demonstration (in

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[a] Analyt. Post. II. ii. p. 90, a. 14-23, 31: τὸ τί ἐστιν εἰδέναι ταὐτό ἐστι καὶ διὰ τί ἐστιν.

[b] Ibid. a. 24-30. ἐκ γὰρ τοῦ αἰσθέσθαι καὶ τὸ καθόλου ἐγένετο ἂν ἡμῖν εἰδέναι· ἡ μὲν γὰρ αἴσθησις ὅτι νῦν ἀντιφράττει· καὶ γὰρ δῆλον ὅτι νῦν ἐκλείπει· ἐκ δὲ τούτου τὸ καθόλου ἂν ἐγένετο.

The purport and relation of this quadruple classification of problems is set forth still more clearly in the sixth book of the Metaphysica (Z. p. 1041) with the explanations of Bonitz, Comm. pp. 358, 359.

[c] Analyt. Post. II. ii. p. 90, a. 31.

[d] Ibid. iii. p. 90, a. 37: τί ἐστιν ὁρισμός, καὶ τίνων, εἴπωμεν, διαπορήσαντες πρῶτον περὶ αὐτῶν.

the Third and Second figures), while every Definition is universal and affirmative. But we may go farther and say, that even where a conclusion universal and affirmative is established (in the First figure) by Demonstration, that same conclusion can never be known by Definition; for if it could be known by Definition, it might have been known without Demonstration. Now we are assured, by an uncontradicted induction, that this is not the fact; for that which we know by Demonstration is either a proprium of the subject *per se*, or an accident or concomitant; but no Definition ever declares either the one or the other: it declares only the essence.[a]

Again, let us ask, *vice versâ*, Can everything that is declared by Definition, or indeed anything that is declared by Definition, be known also by Demonstration? Neither is this possible. One and the same *cognitum* can be known only by one process of cognition. Definitions are the *principia* from which Demonstration departs; and we have already shown that in going back upon demonstrations, we must stop somewhere, and must recognize some *principia* undemonstrable.[b] The Definition can never be demonstrated, for it declares only the essence of the subject, and does not predicate anything concerning the subject; whereas Demonstration assumes the essence to be known, and deduces from such assumption an attribute distinct from the essence.[c]

Prosecuting still farther the dialectical and dubitative treatment,[d] Aristotle now proceeds to suggest, that the Essence (that is, the entire Essence or Quiddity), which is declared by Definition, can never be known by Demonstration. To suppose that it could be so known, would be inconsistent with the conditions of the syllogistic proof used in demonstrating. You prove by syllogism, through a middle term, some predicate or attribute; *e.g.*, because A is predicable of all B, and B is predicable of all C, therefore A is predicable of all C. But you cannot prove, through the middle term B, that A is the essence or quiddity

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[a] Analyt. Post. II. iii. p. 90, b. 13: *ἱκανὴ δὲ πίστις καὶ ἐκ τῆς ἐπαγωγῆς· οὐδὲν γὰρ πώποτε ὁρισάμενοι ἔγνωμεν, οὔτε τῶν καθ' αὑτὸ ὑπαρχόντων οὔτε τῶν συμβεβηκότων. ἔτι εἰ ὁ ὁρισμὸς οὐσίας τις γνωρισμός, τά γε τοιαῦτα φανερὸν ὅτι οὐκ οὐσίαι.*

[b] Ibid. b. 18-27.

[c] Ibid. b. 33, seq.: *ἔτι πᾶσα ἀπόδειξις τὶ κατά τινος δείκνυσιν, οἷον ὅτι ἔστιν ἢ οὐκ ἔστιν· ἐν δὲ τῷ ὁρισμῷ οὐδὲν ἕτερον ἑτέρου κατηγορεῖται, οἷον οὔτε τὸ ζῷον κατὰ τοῦ δίποδος οὐδὲ τοῦτο κατὰ τοῦ ζῴου—ὁ μὲν οὖν ὁρισμὸς τί ἐστι δηλοῖ, ἡ δὲ ἀπόδειξις ὅτι ἢ ἔστι τόδε κατὰ τοῦδε ἢ οὐκ ἔστιν.*

Themistius (p. 71, Speng.) distinguishes the *ὁρισμὸς* itself from *ἡ πρότασις ἡ τὸν ὁρισμὸν κατηγορούμενον ἔχουσα.*

[d] Analyt. Post. II. iv. p. 91, a. 12: *ταῦτα μὲν οὖν μέχρι τούτου διηπορήσθω.* One would think, by these words, that *τὸ διαπορεῖν* (or the dubitative treatment) finished here. But the fact is not so: that treatment is continued for four chapters more, to the commencement of ch. viii. p. 93.

of C, unless by assuming in the premisses that B is the essence of C, and that A is the essence of B; accordingly, that the three propositions, AB, BC, AC, are all co-extensive and reciprocate with each other. Here, then, you have assumed as your premisses two essential propositions, AB, BC, in order to prove as an essential proposition the conclusion AC. But this is inadmissible; for your premisses require demonstration as much as your conclusion. You have committed a *Petitio Principii*;[a] you have assumed in your minor premiss the very point to be demonstrated.

If you cannot obtain Definition as the conclusion of syllogistic Demonstration, still less can you obtain it through the method of generic and specific Division; which last method (as has been already shown in the Analytica Priora) is not equal even to the Syllogism in respect of usefulness and efficacy.[b] You cannot in this method distinguish between propositions both true and essential, and propositions true but not essential; you never obtain, by asking questions according to the method of generic subdivision, any premisses from which the conclusion follows by necessity. Yet this is what you ought to obtain for the purpose of Demonstration; for you are not allowed to enunciate the full actual conclusion among the premisses, and require assent to it. Division of a genus into its species will often give useful information, as Induction also will;[c] but neither the one nor the other will be equivalent to a demonstration. A definition obtained only from subdivisions of a genus, may always be challenged, like a syllogism without its middle term.

Again, neither can you arrive at the definition of a given subject, by assuming in general terms what a definition ought to be, and then declaring a given form of words to be conformable to such assumption; because your minor premiss must involve

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[a] Analyt. Post. II. iv. p. 91, a. 12-32. *ταῦτα δ' ἀνάγκη ἀντιστρέφειν· εἰ γὰρ τὸ* A *τοῦ* Γ *ἴδιον, δῆλον ὅτι καὶ τοῦ* B *καὶ τοῦτο τοῦ* Γ, *ὥστε πάντα ἀλλήλων.—λαμβάνει οὖν ὃ δεῖ δεῖξαι· καὶ γὰρ τὸ* B *ἔστι τί ἐστιν ἄνθρωπος.* Themistius, pp. 72, 73: *τὸν ἀποδεικνύντα τὸ τί ἦν εἶναι τοῦ ἀνθρώπου, ἄλλο τι δεῖ προλαβεῖν τοῦ αὐτοῦ τὸ τί ἦν εἶναι.—οὗ γὰρ βούλεται τὸν ὁρισμὸν ἀποδεῖξαι, τούτου προλαμβάνει τινὰ ὁρισμὸν εἶναι χωρὶς ἀποδείξεως.*

M. Barthélemy St. Hilaire, notes, p. 205:—"Il faut donc, pour conclure par syllogisme que A est la définition essentielle de C, que A soit la définition essentielle de B, et que B soit lui-méme la définition essentielle de C. Mais alors la définition de la chose sera dans le moyen terme lui-même, avant d'être dans la conclusion; en effet, la mineure: B est la définition essentielle de C, donne la définition essentielle de C, sans qu'il soit besoin d'aller jusqu' à la conclusion. Donc la démonstration de l'essence ainsi entendue est absurde."

[b] Analyt Post. II. v. p. 91, b. 12, seq.; Analyt. Prior. I. xxxi. p. 46, a. 31. Aristotle here alludes to the method pursued by Plato in the Sophistes and Politicus, though he does not name Plato: *ἡ διὰ τῶν διαιρέσεων ὁδός*, &c.

[c] Analyt. Post. II. v. p. 91, b. 15-33: *οὐδὲ γὰρ ὁ ἐπάγων ἴσως ἀποδείκνυσιν, ἀλλ' ὅμως δηλοῖ τι.* Compare Themistius, p. 74.

Petitio Principii. The same logical fault will be committed, if you take your departure from an hypothesis in which you postulate the definition of a certain subject, and then declare inferentially what the definition of its contrary must be. The definition which you here assume requires proof as much as that which you infer from it.[a] Moreover, neither by this process, nor by that of generic subdivision, can you show any reason why the parts of the definition should coalesce into one essential whole. If they do not thus coalesce—if they be nothing better than distinct attributes conjoined in the same subject, like *musicus* and *grammaticus*—the real essence is not declared, and the definition is not a good one.[b]

After stating some other additional difficulties which seem to leave the work of Definition inexplicable, Aristotle relinquishes the dubitative treatment, and looks out for some solution of the puzzle: How may it be possible that the Definition shall become known?[c] He has already told us that to know the essence of a thing is the same as to know the cause or reason of its existence; but we must first begin by knowing that the *definiendum* exists; for there can be no definition of a non-entity, except a mere definition of the word, a nominal or verbal definition. Now sometimes we know the existence of the subject by one or other of its accidental attributes; but this gives us no help towards finding the definition.[d] Sometimes, however, we obtain a partial knowledge of its essence along with the knowledge of its existence; when we know it along with some constant antecedent, or through some constant, though derivative, consequent. Knowing thus much, we can often discover the cause or fundamental condition thereof, which is the essence or definition of

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[a] Analyt. Post. II. vi. p. 92, a. 6-28. Themist. p. 76.

Rassow renders ἐξ ὑποθέσεως—"assumptâ generali definitionis notione;" and also says: "τὸ τί ἦν εἶναι—generalem definitionis notionem; τὸ τί ἐστιν—certam quandam definitionem, significare perspicuum est." (Aristotelis de Notionis Definitione Doctrina, p. 65).

[b] Analyt. Post. II. vi. p. 92, a. 32. That the parts of the definition must coalesce into one unity is laid down again in the Metaphysica, Z. pp. 1037, 1038, where Aristotle makes reference to the Analytica as having already treated the same subject, and professes an intention to complete what has been begun in the Analytica; ἐφ' ὅσον ἐν τοῖς 'Αναλυτικοῖς περὶ ὁρισμοῦ μὴ εἴρηται.

[c] Analyt. Post. II. vii. p. 92, a. 34, seq. The ἀπόριαι continue to the end of ch. vii. He goes on, ch. viii. p. 93, a. 1-2: πάλιν δὲ σκεπτέον τί τούτων λέγεται καλῶς, καὶ τί οὐ καλῶς, &c. "Tout ce qui précède ne représente pas la théorie proprement dite; ce n'est qu'une discussion préliminaire" (Barth. St. Hilaire, not. p. 222). These difficult chapters are well illustrated by Hermann Rassow, ch, i. pp. 9-14.

[d] Analyt Post. II. viii. p. 93, a. 3: ἐπεὶ δ' ἐστίν, ὡς ἔφαμεν, ταὐτὸν τὸ εἰδέναι τί ἐστι καὶ τὸ εἰδέναι τὸ αἴτιον τοῦ εἰ ἔστι· Ibid. a. 24: ὅσα μὲν οὖν κατὰ συμβεβηκὸς οἴδαμεν ὅτι ἔστιν, ἀναγκαῖον μηδαμῶς ἔχειν πρὸς τὸ τί ἐστιν· οὐδὲ γὰρ ὅτι ἔστιν ἴσμεν· τὸ δὲ ζητεῖν τί ἐστι μὴ ἔχοντας ὅτι ἔστι, μηδὲν ζητεῖν ἐστίν· καθ' ὅσων δ' ἔχομέν τι, ῥᾷον· ὥστε ὡς ἔχομεν ὅτι ἔστιν, οὕτως ἔχομεν καὶ πρὸς τὸ τί ἐστιν. Compare Brentano, Ueber die Bedeutung des Seienden nach Aristoteles, p. 17.

the subject.[a] Indeed, it may happen that the constant derivative, and the fundamental essence on which it depends, become known both together; or, again, the cause or fundamental condition may perhaps not be the essence of the subject alone, but some fact including other subjects also; and this fact may then be stated as a middle term. Thus, in regard to eclipse of the moon, we know the constant phenomenal fact about it, that, on a certain recurrence of the time of full moon, the moon casts no light and makes no shadow. Hence we proceed to search out the cause. Is it interposition of the earth, or conversion of the moon's body, or extinction of her light, &c.? The new fact when shown, must appear as a middle term, throwing into syllogistic form (in the First figure) the cause or rational explanation of a lunar eclipse; showing not merely that there is an eclipse, but what an eclipse is, or what is its definition.[b]

Aristotle has thus shown how the Essence or Quiddity (*τί ἐστι*) may become known in this class of cases. There is neither syllogism nor demonstration thereof, yet it is declared through syllogism and demonstration: though no demonstration thereof is possible, yet you cannot know it without demonstration, wherever there is an extraneous cause.[c]

But the above doctrine will hold only in cases where there *is* a distinct or extraneous cause; it will not hold in cases where there is none. It is only in the former (as has been said) that a middle term can be shown; rendering it possible that Quiddity or Essence should be declared by a valid formal syllogism, though it cannot be demonstrated by syllogism. In the latter, where there is no distinct cause, no such middle term can be enunciated: the Quiddity or Essence must be assumed as an

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[a] Analyt. Post. II. viii. p. 93, a. 21. Themistius, p. 79, Speng.: *ὅσα δὲ ἀπὸ τῶν οἰκείων τε καὶ ἐξ αὐτοῦ τοῦ πράγματος, ἀπὸ τούτων ἤδη ῥᾷον εἰς τὸ τί ἐστι μεταβαίνομεν.*

[b] Ibid. p. 93, a. 30-b. 14.

[c] Ibid. b. 15-20: *ὥστε συλλογισμὸς μὲν τοῦ τί ἐστιν οὐ γίνεται οὐδ' ἀπόδειξις, δῆλον μέντοι διὰ συλλογισμοῦ καὶ δι' ἀποδείξεως.*

Mr. Poste translates an earlier passage (p. 93, a. 5) in this very difficult chapter as follows (p. 107): "If one cause is demonstrable, another indemonstrable cause must be the intermediate; and the proof is in the first figure, and the conclusion affirmative and universal. In this mode of demonstrating the essence, we prove one definition by another, for the intermediate that proves an essence or a peculiar predicate must itself be an essence or a peculiar predicate. Of two definitions, then, one is proved and the other assumed; and, as we said before, this is not a demonstration but a dialectical proof of the essence." Mr. Poste here translates *λογικὸς συλλογισμός* "dialectical proof." I understand it rather as meaning a syllogism, *τοῦ ὑπάρχειν* simply (Top. I. v. p. 102, b. 5), in which all that you really know is that the predicate belongs to the subject, but in which you *assume* besides that it belongs to the subject *essentially*. It is not a demonstration because, in order to obtain Essence in the conclusion, you are obliged to postulate Essence in your premiss. (See Alexander ad Topic. I. p. 263, Br.). You have therefore postulated a premiss which required proof as much as the conclusion.

immediate or undemonstrable *principium*, and must be exposed or set out in the best manner practicable as an existent reality, on Induction or on some other authority. The arithmetician makes his first steps by assuming both what a monad is and that there exists such a monad.[a]

We may distinguish three varieties of Definition. 1. Sometimes it is the mere explanation what a word signifies; in this sense, it has nothing to do with essence or existence; it is a nominal definition and nothing more.[b] 2. Sometimes it enunciates the Essence, cause, or reason of the *definitum*; this will happen where the cause is distinct or extraneous, and where there is accordingly an intervening middle term: the definition will then differ from a demonstration only by condensing into one enunciation the two premisses and the conclusion which together constitute the demonstration.[c] 3. Sometimes it is an immediate proposition, an indemonstrable hypothesis, assuming Essence or Quiddity; the essence itself being cause, and no extraneous cause—no intervening middle term—being obtainable.[d]

To know or cognize is, to know the Cause; when we know the Cause, we are satisfied with our cognition. Now there are four Causes, or varieties of Cause:—

1. The Essence or Quiddity (Form)—τὸ τί ἦν εἶναι.
2. The necessitating conditions (Matter)—τὸ τίνων ὄντων ἀνάγκη τοῦτ' εἶναι.
3. The proximate mover or stimulator of change (Efficient) —ἤ τί πρῶτον ἐκίνησε.
4. That for the sake of which (Final Cause or End)— τὸ τίνος ἕνεκα.

All these four Causes (Formal, Material, Efficient, Final) appear as middle terms in demonstrating. We can proceed through the medium either of Form, or of Matter, or of Efficient, or of End. The first of the four has already been exemplified—the demon-

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[a] Analyt. Post. II. ix. p. 93, b. 21. ἔστι δὲ τῶν μὲν ἕτερόν τι αἴτιον, τῶν δ' οὐκ ἔστιν. ὥστε δῆλον ὅτι καὶ τῶν τί ἐστι τὰ μὲν ἄμεσα καὶ ἀρχαί εἰσιν, ἃ καὶ εἶναι καὶ τί ἐστιν ὑποθέσθαι δεῖ ἢ ἄλλον τρόπον φανερὰ ποιῆσαι. ὅπερ ὁ ἀριθμητικὸς ποιεῖ· καὶ γὰρ τί ἐστι τὴν μονάδα ὑποτίθεται, καὶ ὅτι ἔστιν.

Themistius, p. 80: ἃ καὶ εἶναι καὶ τί ἐστιν ὑποθέσθαι δεῖ, ἢ ἄλλον τρόπον φανερὰ ποιῆσαι ἐξ ἐπαγωγῆς ἢ πίστεως ἢ ἐμπειρίας. Rassow, De Notionis Definitione, pp. 18-22.

[b] Analyt. Post. II. x. p. 93, b. 29-37.

[c] Ibid. p. 93, b. 38, seq. οἷον ἀπόδειξις τοῦ τί ἐστιν, τῇ θέσει διαφέρων τῆς ἀποδείξεως·—συλλογισμὸς τοῦ τί ἐστι, πτώσει διαφέρων τῆς ἀποδείξεως—differing "situ et positione terminorum" (Julius Pacius, p. 493).

[d] Ibid. p. 94, a. 9: ὁ δὲ τῶν ἀμέσων ὁρισμός, θέσις ἐστὶ τοῦ τί ἐστιν ἀναπόδεικτος. Compare I. xxiv. p. 85, b. 24: ᾧ γὰρ καθ' αὑτὸ ὑπάρχει τι, τοῦτοθαὐτὸ αὑτῷ αἴτιον. See Kampe, Die Erkenntniss-theorie des Aristoteles, p. 212, seq.

stration by Form. The second appears in demonstrating that the angle in a semi-circle is always a right angle; where the middle term (or matter of the syllogism, (τὸ ἐξ οὗ) is, that such angle is always the half of two right angles.[a] The Efficient is the middle term, when to the question, Why did the Persians invade Athens? it is answered that the Athenians had previously invaded Persia along with the Eretrians. (All are disposed to attack those who have attacked them first; the Athenians attacked the Persians first; *ergo*, the Persians were disposed to attack the Athenians.) Lastly, the Final Cause serves as middle term, when to the question, Why does a man walk after dinner? the response is, For the purpose of keeping up his health. In another way, the middle term here is digestion: walking after dinner promotes digestion; digestion is the efficient cause of health.[b]

The Final Cause or End is prior in the order of nature, but posterior to the terms of the conclusion in the order of time or generation; while the Efficient is prior in the order of time or generation. The Formal and Material are simultaneous with the effect, neither prior nor posterior.[c] Sometimes the same fact may proceed both from a Final cause, and from a cause of Material Necessity; thus the light passes through our lantern for the purpose of guiding us in the dark, but also by reason that the particles of light are smaller than the pores in the glass. Nature produces effects of finality, or with a view to some given end; and also effects by necessity, the necessity being either inherent in the substance itself, or imposed by extraneous force. Thus a stone *falls* to the ground by necessity of the first kind, but *ascends* by necessity of the second kind. Among products of human intelligence some spring wholly from design without necessity; but others arise by accident or chance and have no final cause.[d]

That the middle term is the Cause, is equally true in respect to *Entia*, *Fientia*, *Præterita*, and *Futura*; only that in respect to *Entia*, the middle term or Cause must be an *Ens*; in respect to *Fientia* it must be a *Fiens*; in respect to *Præterita*, a *Præteritum*; and in respect to *Futura*, a *Futurum*; that is, in each case, it must be generated at the corresponding time

[a] Analyt. Post. II. xi. p. 94, a. 21–36. Themistius, p. 83: μάλιστα μὲν γὰρ ἐπὶ πάσης ἀποδείξεως ὁ μέσος ἐστιν οἷον ἡ ὕλη τῷ συλλογισμῷ· οὗτος γὰρ ὁ ποιῶν τὰς δύο προτάσεις, ἐφ' αἷς τὸ συμπέρασμα.

[b] Analyt. Post. II. xi. p. 94, a. 36-b. 21.

[c] Ibid. b. 21–26. Themistius, p. 83: ἡ γένεσις οὖν τοῦ μέσου καὶ αἰτίου τὴν αὐτὴν οὐκ ἔχει τάξιν ἐφ' ἁπάντων, ἀλλ' οὗ μὲν πρώτην ὡς ἐπὶ τῶν κινητικῶν, οὗ δὲ τελευταίαν ὡς ἐπὶ τῶν τελῶν καὶ ὧν ἕνεκα, οὗ δ' ἅμα ὡς ἐπὶ τῶν ὁρισμῶν καὶ τοῦ τί ἦν εἶναι.

[d] Analyt. Post. II. p. 94, b. 27-p. 95, a. 9.

with the major and minor terms in the conclusion.[a] What is the cause of an eclipse of the moon? The cause is, that the earth intervenes between moon and sun; and this is true alike of eclipses past, present, and future. Such an intervention is the essence or definition of a lunar eclipse: the cause is therefore Formal, and cause and effect are simultaneous, occurring at the same moment of time. But in the other three Causes—Material, Efficient, Final—where phenomena are successive and not simultaneous, can we say that the antecedent is cause and the consequent effect, time being, as seems to us, a *continuum?* In cases like this, we can syllogize from the consequent backward to the antecedent; but not from the antecedent forward to the consequent. If the house has been built, we can infer that the foundations have been laid; but, if the foundations have been laid, we cannot infer that the house has been built.[b] There must always be an interval of time during which inference from the antecedent will be untrue; perhaps, indeed, it may never become true. Cause and *causatum* in these three last varieties of Cause, do not universally and necessarily reciprocate with each other, as in the case of the Formal cause. Though time is continuous, events or generations are distinct points marked in a continuous line, and are not continuous with each other.[c] The number of these points that may be taken is indeed infinite; yet we must assume some of them as ultimate and immediate *principia*, in order to construct our syllogism, and provide our middle term.[d] Where the middle term reciprocates and is co-extensive with the major and the minor, in such cases we have generation of phenomena in a cycle; *e.g.*, after the earth has been made wet, vapour rises of necessity: hence comes a cloud, hence water; which again falls, and the earth again becomes wet.[e] Finally, wherever our conclusion is not universally and necessarily true, but true only in most cases, our immediate *principia* must also be of the same character, true in most cases, but in most cases only.[f]

How are we to proceed in hunting out those attributes that are predicated *in Quid*,[g] as belonging to the Essence of the subject? The subject being a lowest species, we must look out for such attributes as belong to all individuals thereof, but which belong

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[a] Analyt. Post. II. xii. p. 95, a. 10, 36: τὸ γὰρ μέσον ὁμόγονον δεῖ εἶναι, &c.

[b] Ibid. a. 24 seq., b. 32; Julius Pacius, ad loc.; Biese, Die Philosophie des Aristot. pp. 302-303.

[c] Analyt. Post. II. xii. p. 95, a. 39-b. 8; Themistius, p. 86.

[d] Analyt. Post. II. xii. p. 95, b. 14-31: ἀρχὴ δὲ καὶ ἐν τούτοις ἄμεσος ληπτέα.

[e] Ibid. b. 38 p. 96, a 7.

[f] Ibid. p. 96, a. 8–19.

[g] Ibid. xiii. p. 96, a. 22: πῶς δεῖ θηρεύειν τὰ ἐν τῷ τί ἐστι κατηγορούμενα;

also to individuals of other species under the same genus. We shall thus find one, two, three, or more, attributes, each of which, separately taken, belongs to various individuals lying out of the species; but the assemblage of which, collectively taken, does not belong to any individual lying out of the species. The assemblage thus found is the Essence; and the enunciation thereof is the Definition of the species. Thus, the triad is included in the genus number; in searching for its definition, therefore, we must not go beyond that genus, nor include any attributes (such as *ens*, &c.) predicable of other subjects as well as numbers. Keeping within the limits of the genus, we find that every triad agrees in being an odd number. But this oddness belongs to other numbers also (pentad, heptad, &c.). We therefore look out for other attributes, and we find that every triad agrees in being a prime number, in two distinct senses; first, that it is not measured by any other number; secondly, that it is not compounded of any other numbers. This last attribute belongs to no other odd number except the triad. We have now an assemblage of attributes, which belong each of them to every triad, universally and necessarily, and which, taken all together, belong *exclusively* to the triad, and therefore constitute its essence or definition. The triad is a number, odd, and prime in the two senses.[a] The *definitum* and the definition are here exactly co-extensive.

Where the matter that we study is the entire genus, we must begin by distributing it into its lowest species; *e.g.* number into dyad, triad, &c.; in like manner, taking straight line, circle, right angle, &c.[b] We must first search out the definitions of each of these lowest species; and these having been ascertained, we must next look above the genus, to the Category in which it is itself comprised, whether *Quantum*, *Quale*, &c. Having done thus much we must study the derivative attributes or propria of the lowest species through the common generalities true respecting the larger. We must recollect that these derivative attributes are derived from the essence and definition of the lowest species, the complex flowing from the simple as its *principium:* they belong *per se* only to the lowest species thus

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[a] Analyt. Post. II. xiii. p. 96, a. 24-b. 14. *εἰ τοίνυν μηδενὶ ὑπάρχει ἄλλῳ ἢ ταῖς ἀτόμοις τριάσι, τοῦτ' ἂν εἴη τὸ τριάδι εἶναι. ὑποκείσθω γὰρ καὶ τοῦτο, ἡ οὐσία ἡ ἑκάστου εἶναι ἡ ἐπὶ ταῖς ἀτόμοις ἔσχατος τοιαύτη κατηγορία. ὥστε ὁμοίως καὶ ἄλλῳ ὁτῳοῦν τῶν οὕτω δειχθέντων τὸ αὐτῷ εἶναι ἔσται.*

[b] Ibid. b. 18. The straight line is the first or lowest of all lines: no other line can be understood, unless we first understand what is meant by a straight line. In like manner the right angle is the first of all angles, the circle the first of all curvilinear figures (Julius Pacius, ad loc. p. 504).

defined; they belong to the higher genera only through those species.[a] It is in this way, and not in any other, that the logical Division of genera, according to specific differences, can be made serviceable for investigation of essential attributes; that is, it can only be made to demonstrate what is derivative from the essence. We have shown already that it cannot help in demonstrating essence or Definition itself. We learn to marshal in proper order the two constituent elements of our definition, and to attach each specific difference to the genus to which it properly belongs. Thus we must not attempt to distribute the genus animal according to the difference of having the wing divided or undivided: many animals will fall under neither of the two heads; the difference in question belongs to the lower genus winged animal, and distributes the same into two species. The characteristic or specific difference must be enunciated and postulated by itself, and must be attached to its appropriate genus in order to form the definition. It is only by careful attention to the steps of legitimate logical Division that we can make sure of including all the particulars and leaving out none.[b]

Some contemporaries of Aristotle, and among them Speusippus, maintained that it was impossible either to define, or to divide logically, unless you knew all particulars without exception. You cannot (they said) know any one thing, except by knowing its differences from all other things; which would imply that you knew also all these other things.[c] To these reasoners Aristotle replies: It is not necessary to know *all* the differences of every thing; you know a thing as soon as you know its essence, with the properties *per se* which are derivative therefrom. There are many differences not belonging to the essence, but distinguishing from each other two things having the same essence: you may know the thing, without knowing these accidental

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[a] Analyt. Post. II. xiii. p. 96, b. 19-25: *μετὰ δὲ τοῦτο, λαβόντα τί τὸ γένος, οἷον πότερον τῶν ποσῶν ἢ τῶν ποιῶν, τὰ ἴδια πάθη θεωρεῖν διὰ τῶν κοινῶν πρώτων. τοῖς γὰρ συντιθεμένοις ἐκ τῶν ἀτόμων* (speciebus infimis) *τὰ συμβαίνοντα ἐκ τῶν ὁρισμῶν ἔσται δῆλα, διὰ τὸ ἀρχὴν εἶναι πάντων τὸν ὁρισμόν καὶ τὸ ἁπλοῦν, καὶ τοῖς ἁπλοῖς καθ' αὑτὰ ὑπάρχειν τὰ συμβαίνοντα μόνοις, τοῖς δ' ἄλλοις κατ' ἐκεῖνα.*

Themistius illustrates this obscure passage, p. 89. The definitions of *εὐθεῖα γραμμή, κεκλασμένη γραμμή, περιφερὴς γραμμή*, must each of them contain the definition of *γραμμή* (=*μῆκος ἀπλατές*), since it is in the Category Ποσόν (*ποσὸν μῆκος ἀπλατές*). But the derivative properties of the circle (*περιφερὴς γραμμή*) are deduced from the definition of a circle, and belong to it in the first instance *quâ περιφερὴς γραμμή*, in a secondary way *quâ γραμμή*.

[b] Analyt. Post. II. xiii. p. 96, b. 25-p. 97, a. 6.

[c] Ibid. p. 97, a. 6-10; Themistius, p. 92. Aristotle does not here expressly name Speusippus, but simply says *φασί τινες*. It is Themistius who names Speusippus; and one of the Scholiasts refers to Eudemus as having expressly indicated Speusippus (Schol. p. 248, a. 24, Br.).

differences.[a] When you divide a genus into two species, distinguished by one proximate specific difference, such that there cannot be any thing that does not fall under one or other of these *membra condividentia*, and when you have traced the subject investigated under one or other of these members, you can always follow this road until no lower specific difference can be found, and you have then the final essence and definition of the subject; even though you may not know how many *other* subjects each of the two members may include.[b] Thus does Aristotle reply to Speusippus, showing that it is not necessary, for the definition of one thing, that you should know *all* other things. His reply, as in many other cases, is founded on the distinction between the Essential and the Accidental.

To obtain or put together a definition through logical Division, three points are to be attended to.[c] Collect the predicates *in Quid*; range them in the proper order; make sure that there are no more, or that you have collected all. The essential predicates are genera, to be obtained not otherwise than by the method (dialectical) used in concluding accidents. As regards order, you begin with the highest genus, that which is predicable of all the others, while none of these is predicable of it, determining in like fashion the succession of the rest respectively. The collection will be complete, if you divide the highest genus by an exhaustive specific difference, such that every thing must be included in one or other of the two proximate and opposed portions; and then taking the species thus found as your *dividendum*, subdivide it until no lower specific difference can be found, or you obtain from the elements an exact equivalent to the subject.[d]

When the investigation must proceed by getting together a group of similar particulars, you compare them, and note what is the same in all; then turn to another group which are the same *in genere* yet differ *in specie* from the first group, and have a different point of community among themselves. You next compare the point of community among the members of the first group, and that among the members of the second group. If the two points of community can be brought under one

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[a] Analyt. Post. II. xiii. p. 97, a. 12: πολλαὶ γὰρ διαφοραὶ ὑπάρχουσι τοῖς αὐτοῖς τῷ εἴδει, ἀλλ' οὐ κατ' οὐσίαν οὐδὲ καθ' αὐτά.

[b] Ibid. a. 18–22: φανερὸν γὰρ ὅτι ἂν οὕτω βαδίζων ἔλθῃ εἰς ταῦτα ὧν μηκέτι ἐστὶ διαφορά, ἕξει τὸν λόγον τῆς οὐσίας.

[c] Ibid. a. 23: εἰς δὲ τὸ κατασκευάζειν ὅρον διὰ διαιρέσεων. The Scholiast, p. 248, a. 41, explains κατασκευάζειν by εὑρεῖν, συνθεῖναι, ἀποδοῦναι. He distinguishes it from ἀποδεικνύναι; demonstration of the definition being impracticable.

[d] Analyt. Post. II. xiii. p. 97, a. 23 seq. See Waitz, Comm. p. 418.

rational formula, that will be the definition of the subject; but if, at the end of the process, the distinct points of community are not found resolvable into any final one, this proves that the supposed *definiendum* is not one but two or more.[a] For example, suppose you are investigating, What is the essence or definition of magnanimity? You must study various magnanimous individuals, and note what they have in common *quâ* magnanimous.[b] Thus, Achilles, Ajax, Alkibiades were all magnanimous. Now, that which the three had in common was, that they could not endure to be insulted; on that account Alkibiades went to war with his countrymen, Achilles was angry and stood aloof from the Greeks, Ajax slew himself. But, again, you find two other magnanimous men, Sokrates and Lysander. These two had in common the quality, that they maintained an equal and unshaken temper both in prosperity and adversity. Now when you have got thus far, the question to be examined is, What is the point of identity between the temper that will not endure insult, and the temper that remains undisturbed under all diversities of fortune? If an identity can be found, this will be the essence or definition of magnanimity; to which will belong equanimity as one variety, and intolerance of insult as another. If, on the contrary, no identity can be found, you will then have two distinct mental dispositions, without any common definition.[c]

Every definition must be an universal proposition, applicable, not exclusively to one particular object, but to a class of greater or less extent. The lowest species is easier to define than the higher genus; this is one reason why we must begin with particulars, and ascend to universals. It is in the higher genera that equivocal terms most frequently escape detection.[d] When you are demonstrating, what you have first to attend to is, the completeness of the form of syllogizing: when you are defining,

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[a] Analyt. Post. II. xiii. p. 97, b. 7-15. *πάλιν σκοπεῖν εἰ ταὐτὸν ἕως ἂν εἰς ἕνα ἔλθῃ λόγον· οὗτος γὰρ ἔσται τοῦ πράγματος ὁρισμός. ἐὰν δὲ μὴ βαδίζῃ εἰς ἕνα ἀλλ' εἰς δύο ἢ πλείω, δῆλον ὅτι οὐκ ἂν εἴη ἕν τι εἶναι τὸ ζητούμενον, ἀλλὰ πλείω.*

[b] Ibid. b. 16: *σκεπτέον ἐπί τινων μεγαλοψύχων, οὓς ἴσμεν, τί ἔχουσιν ἓν πάντες ᾗ τοιοῦτοι.*

[c] Ibid. b. 17-25. *ταῦτα δύο λαβὼν σκοπῶ τί τὸ αὐτὸ ἔχουσιν ἥ τε ἀπάθεια ἡ περὶ τὰς τύχας καὶ ἡ μὴ ὑπομονὴ ἀτιμαζομένων. εἰ δὲ μηδέν, δύο εἴδη ἂν εἴη τῆς μεγαλοψυχίας.*

Æquam memento rebus in arduis
Servare mentem: non secus in bonis
Ab insolenti temperatam
Lætitiâ.—HORACE, *Ode*, ii. 3.

Aristotle says that there will be two species of magnanimity. But surely if the two so-called species connote nothing in common they are not rightly called species, nor is magnanimity rightly called a genus. Equanimity would be distinct from magnanimity; Sokrates and Lysander would not properly be magnanimous but equanimous.

[d] Analyt. Post. II. xiii. p. 97, b. 29: *καὶ γὰρ αἱ ὁμωνυμίαι λανθανουσι μᾶλλον ἐν τοῖς καθόλου ἢ ἐν τοῖς ἀδιαφόροις.*

the main requisite is to be perspicuous and intelligible; *i.e.* to avoid equivocal or metaphorical terms.[a] You will best succeed in avoiding them, if you begin with the individuals, or with examples of the lowest species, and then proceed to consider not their resemblances generally, but their resemblances in certain definite ways, as in colour or figure. These more definite resemblances you will note first; upon each you will found a formula of separate definition; after which you will ascend to the more general formula of less definite resemblance common to both. Thus, in regard to the acute or sharp, you will consider the acute in sound, and in other matters (tastes, pains, weapons, angles, &c.), and you will investigate what is the common point of identity characterizing all. Perhaps there may be no such identity; the transfer of the term from one to the other may be only a metaphor: you will thus learn that no common definition is attainable. This is an important lesson; for as we are forbidden to carry on a dialectical debate in metaphorical terms, much more are we forbidden to introduce metaphorical terms in a definition.[b]

To obtain and enunciate correctly the problems suitable for discussion in each branch of science, you must have before you tables of dissection and logical division, and take them as guides;[c] beginning with the highest genus and proceeding down-

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[a] Analyt. Post. II. xiii. p. 97, b. 31: *ὥσπερ δὲ ἐν ταῖς ἀποδείξεσι δεῖ τό γε συλλελογίσθαι ὑπάρχειν, οὕτω καὶ ἐν τοῖς ὅροις τὸ σαφές.*

By *τὸ σαφές*, he evidently means the avoidance of equivocal or metaphorical terms, and the adherence to true genera and species. Compare Biese, Die Philosophie des Aristot. pp. 308-310.

[b] Analyt. Post. II. xiii. p. 97, b. 35-39. —(*διαλέγεσθαί φησι, τὸ διαλεκτικῶς ὁμιλεῖν.* —Schol. p. 248, b. 23, Brand.). Aristotle considers it metaphorical when the term *acute* is applied both to a sound and to an angle.

The treatment of this portion of the Aristotelian doctrine by Prantl (Geschichte der Logik, vol. I. ch. iv. pp. 246, 247, 338), is instructive. He brings out, in peculiar but forcible terms, the idea of "notional causality" which underlies Aristotle's Logic. "So also ist die Definition das Aussprechen *des schöpferischen Wesensbegriffes*. . . . Soweit der schöpferische Wesensbegriff erreicht werden kann, ist durch denselben die begriffliche Causalität erkannt; und die Einsicht in diese *primitive Ursächlichkeit* wird in dem Syllogismus vermittelst des Mittelbegriffes erreicht. Ueber den schöpferischen Wesensbegriff hinauszugehen, ist nicht möglich. . . . Sobald die Definition mehr als eine blosse Namenserklärung ist—und sie muss mehr seyn—erkennt sie den Mittelbegriff als schöpferische Causalität. . . . Die ontologische Bedeutung des Mittelbegriffes ist, dass er schöpferischer Wesensbegriff ist," Rassow (pp. 51, 63, &c.) adopts a like metaphorical phrase:—"Definitionem est, explicare notionem; quæ quidem est *creatrix rerum causa.*"

[c] Analyt. Post. II. xiv. p. 98. a. 1. *πρὸς δὲ τὸ ἔχειν τὰ προβλήματα, λέγειν δεῖ τάς τε ἀνατομὰς καὶ τὰς διαιρέσεις, οὕτω δὲ διαλέγειν, ὑποθέμενον τὸ γένος τὸ κοινὸν ἁπάντων.* This is Waitz's text, which differs from Julius Pacius and from Firmin Didot.

Themistius (pp. 94-95) explains *τὰς ἀνατομὰς* to be anatomical drawings or exercises prepared by Aristotle for teaching: *καὶ τὰς ἀνατομὰς ἔχειν δεῖ προχείρως, ὅσαι πεποίηνται Ἀριστοτέλει.*

The collection of Problems or questions for investigation was much prosecuted, not merely by Aristotle but by Theophrastus (Schol. p. 249, a. 12, Br.).

ward through the successively descending scale of sub-genera and species. If you are studying animals, you first collect the predicates belonging to all animals; you then take the highest subdivision of the genus animal, such as bird, and you collect the predicates belonging to all birds; and so on to the next in the descending scale. You will be able to show cause why any of these predicates must belong to the man Sokrates, or to the horse Bukephalus; because it belongs to the genus animal, which includes man and horse. Animal will be the middle term in the demonstration.[a] This example is taken from the class-terms current in vulgar speech. But you must not confine yourself to these; you must look out for new classes, bound together by the possession of some common attribute, yet not usually talked of as classes, and you must see whether other attributes can be found constantly conjoined therewith. Thus you find that all animals having horns, have also a structure of stomach fit for rumination, and teeth upon one jaw only. You know, therefore, what is the cause that oxen and sheep have a structure of stomach fit for rumination. It is because they have horns. Having-horns is the middle term of the demonstration.[b] Cases may also be found in which several objects possess no common nature or attribute to bind them into a class, but are yet linked together, by analogy, in different ways, to one and the same common term.[c] Some predicates will be found to accompany constantly this analogy, or to belong to all the objects *quâ* analogous, just as if they had one and the same class-nature. Demonstration may be applied to these, as to the former cases.

Problems must be considered to be the same, when the middle term of the demonstration is the same for each, or when the middle term in the one is a subordinate or corollary to that in the other. Thus, the cause of echo, the cause of images in a mirror, the cause of the rainbow, all come under the same general head or middle term (refraction), though with a specific difference in each case. Again, when we investigate the problem, Why does the Nile flow with a more powerful current in the last half of the (lunar) month? the reason is that the month is then more wintry. But why *is* the month then more wintry? Because the light of the moon is then diminishing. Here are

[a] Analyt. Post. II. xiv. p. 98, a. 5-12.

[b] Ibid. a. 13-19. Aristotle assumes that the material which ought to have served for the upper teeth, is appropriated by Nature for the formation of horns.

[c] Ibid. a. 20-23: ἔτι δ' ἄλλος τρόπος ἐστὶ κατὰ τὸ ἀνάλογον ἐκλέγειν. He gives as examples, σήπιον, ἄκανθα, ὀστοῦν.

two middle terms, the one of which depends upon the other. The problem for investigation is therefore the same in both.[a]

Respecting *Causa* and *Causatum* question may be made whether it is necessary that when the *causatum* exists, the *causa* must exist also? The answer must be in the affirmative, if you include the cause in the definition of *causatum*. Thus, if you include in the definition of a lunar eclipse, the cause thereof, viz., intervention of the earth between moon and sun—then, whenever an eclipse occurs, such intervention must occur also. But it must not be supposed that there is here a perfect reciprocation, and that as the *causatum* is in this case demonstrable from the cause, so there is the like demonstration of the cause from the *causatum*. Such a demonstration is never a demonstration of διότι; it is only a demonstration of ὅτι. The *causatum* is not included in the definition of the cause; if you demonstrate that because the moon is eclipsed, therefore the earth is interposed between the moon and the sun, you prove the fact of the interposition, but you learn nothing about the cause thereof. Again, in a syllogism the middle term is the cause of the conclusion (*i.e.*, it is the reason why the major term is predicated of the minor, which predication *is* the conclusion); and in this sense the cause and *causatum* may sometimes reciprocate, so that either may be proved by means of the other. But the *causatum* here reciprocates with the *causa* only as premiss and conclusion (*i.e.*, we may know either by means of the other), not as cause and effect; the *causatum* is not cause of the *causa* as a fact and reality, as the *causa* is cause of the *causatum*.[b]

The question then arises, Can there be more than one cause of the same *causatum*? Is it necessary that the same effect should be produced in all cases by the same cause? In other words,

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[a] Analyt. Post. II. xv. p. 98, a. 24-34. Theophrastus is said to have made collections of "*like problems*," problems of which the solution depended upon the same middle term (Schol. p. 249, a. 11. Brand.).

[b] Analyt. Post. II. xvi. p. 98, a. 35, seq. Themistius, pp. 96-97: *οὐ γάρ ἐστι αἴτιον τοῦ τὴν γῆν ἐν μέσῳ εἶναι τὸ τὴν σελήνην ἐκλείπειν, ἀλλὰ μέσον τοῦ συλλογισμοῦ· καὶ τοῦ συμπεράσματος ἴσως αἴτιον, τοῦ πράγματος δὲ οὐδαμῶς.* Themistius here speaks with a precision which is not always present to the mind of Aristotle; for he discriminates the cause of *the fact* from the cause of the *affirmed fact* or *conclusion*. M. Barthélemy St. Hilaire says (Plan Général des Derniers Analytiques, p. cxl.):—"Ainsi, la démonstration de l'effet par la cause apprend pourquoi la chose est; la démonstration par l'effet apprend seulement que la chose est. On sait que la terre s'interpose, mais on ne sait pas pourquoi elle s'interpose: et ce qui le montre bien, c'est que l'idée de l'interposition de la terre est indispensable à la définition essentielle de l'éclipse tandis que l'idée de l'éclipse n'a que faire dans la définition de l'interposition. L'interposition de la terre fait donc comprendre l'éclipse; tandis que l'éclipse ne fait pas du tout comprendre l'interposition de la terre."

when the same predicate is demonstrated to be true of two distinct minors, may it not be demonstrated in one case by one middle term, and in the other case by a different middle term?[a] Answer: In genuine and proper scientific problems the middle term is the rational account (definition, interpretation) of the major extreme; this middle term therefore, or the cause, must in all cases be one and the same. The demonstration in these cases is derived from the same essence; it is *per se*, not *per accidens*. But there are other problems, not strictly and properly scientific, in which cause and *causatum* are connected merely *per accidens;* the demonstration being operated by a middle term which is not of the essence of the major, but is only a sign or concomitant.[b] According as the terms of the conclusion are related to each other, so also will the middle term be related to both. If the conclusion be equivocal, the middle term will be equivocal also; if the predicate in the conclusion be in generic relation to the subject, the major also will be in generic relation to the middle. Thus, if you are demonstrating that one triangle is similar to another, and that one colour is similar to another, the word similar in these two cases is not univocal, but equivocal; accordingly, the middle term in the demonstration will also be equivocal. Again, if you are demonstrating that four proportionals will also be proportionals alternately, there will be one cause or middle term, if the subject of the conclusion be lines; another, if the subject be numbers. Yet the middle term or cause in both is the same, in as far as both involve a certain fact of increment.[c]

The major term of the syllogism will in point of extension be larger than any particular minor, but equal or co-extensive with the sum total of the particulars. Thus the predicate deciduous, affirmable of all plants with broad leaves, is greater in extension than the subject vines, also than the subject fig-trees; but it is equal in extension to the sum total of vines and fig-trees (the other particular broad-leaved plant). The middle also, in an universal demonstration, reciprocates with the major, being its definition. Here the true middle or cause of the effect that vines and fig-trees shed their leaves, is not that they are broad-leaved plants, but rather a coagulation of sap or some such fact.[d]

The last chapter of the present treatise is announced by

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[a] Analyt. Post. II. xvi. p. 98, b. 25.

[b] Ibid. xvii. p. 99, a. 4: ἔστι δὲ καὶ οὗ αἴτιον καὶ ᾧ σκοπεῖν κατὰ συμβεβηκός· οὐ μὴν δοκεῖ προβλήματα εἶναι. "Veluti si probemus grammaticum esse aptum ad ridendum, quia homo est aptus ad ridendum." (Julius Pacius, p. 514.)

[c] Analyt. Post. II. xvii. p. 99, a. 8-16.

[d] Ibid. a. 16 seq.

Aristotle as the appendix and completion of his entire theory of Demonstrative Science, contained in the Analytica Priora, which treats of Syllogism, and the Analytica Posteriora, which treats of Demonstration. After formally winding up the whole enquiry, he proceeds to ask regarding the *principia* of Demonstrative Science: What are they? How do they become known? What is the mental habit or condition that is cognizant of them?[a]

Aristotle has already laid down that there can be no Demonstration without certain *præcognita* to start from; and that these *præcognita* must, in the last resort, be *principia* undemonstrable, immediately known, and known even more accurately than the conclusions deduced from them. Are they then cognitions, or cognizant habits and possessions, born along with us, and complete from the first? This is impossible (Aristotle declares); we cannot have such valuable and accurate cognitions from the first moments of childhood, and yet not be at all aware of them. They must therefore be acquired; yet how is it possible for us to acquire them?[b] The fact is, that, though we do not from the first possess any such complete and accurate cognitions as these, we have from the first an inborn capacity or potentiality of arriving at them. And something of the same kind belongs to all animals.[c] All of them possess an apprehending and discriminating power born with them, called Sensible Perception; but, though all possess such power, there is this difference, that with some the act of perception dwells for a longer or shorter time in the mind; with others it does not. In animals with whom it does not dwell, there can be no knowledge beyond perception, at least as to all those matters wherein perception is evanescent; but with those that both perceive and retain per-

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[a] Analyt. Post. II. xix. p. 99, b. 15-19: περὶ μὲν οὖν συλλογισμοῦ καὶ ἀποδείξεως, τί τε ἑκάτερόν ἐστι καὶ πῶς γίνεται, φανερόν, ἅμα δε καὶ περὶ ἐπιστήμης ἀποδεικτικῆς· ταὐτὸν γάρ ἐστιν. περὶ δὲ τῶν ἀρχῶν, πῶ τε γίνονται γνώριμοι, καὶ τίς ἡ γνωρίζουσα ἕξις, ἐντεῦθέν ἐστι δῆλον προαπορήσασι πρῶτον.

Bekker and Waitz, in their editions, include all these words in ch. xix.: the older editions placed the words preceding περὶ δὲ in ch. xviii. Zabarella observes the transition to a new subject (Comm. ad Analyt. Post. II. ch. xv. p. 640):—"Postremum hoc caput (beginning at περὶ δὲ) extra primariam tractationem positum esse manifestum est: quum præcesserit epilogus respondens procemio quod legitur in initio primi libri Priorum Analyticorum."

[b] Analyt. Post. II. xix. p. 99, b. 25-30: πότερον οὐκ ἐνοῦσαι αἱ ἕξεις ἐγγίνονται ἢ ἐνοῦσαι λελήθασιν. εἰ μὲν δὴ ἔχομεν αὐτάς, ἄτοπον· συμβαίνει γὰρ ἀκριβεστέρας ἔχοντας γνώσεις ἀποδείξεως λανθάνειν· εἰ δὲ λαμβάνομεν μὴ ἔχοντες πρότερον, πῶς ἂν γνωρίζοιμεν καὶ μανθάνοιμεν ἐκ μὴ προϋπαρχούσης γνώσεως; Compare, supra, Analyt. Post. I. iii. p. 72, b. 20-30; Metaphys. A. ix. p. 993, a. 1, with the Comment. of Alexander, p. 96, Bonitz.

[c] Analyt. Post. II. xix. p. 99, b. 30: φανερὸν τοίνυν οὔτ' ἔχειν οἷόν τε, οὔτ' ἀγνοοῦσι καὶ μηδεμίαν ἔχουσιν ἕξιν ἐγγίνεσθαι· ἀνάγκη ἄρα ἔχειν μέν τινα δύναμιν, μὴ τοιαύτην δ' ἔχειν ἣ ἔσται τούτων τιμιωτέρα κατ' ἀκρίβειαν. φαίνεται δὲ τοῦτό γε πᾶσιν ὑπάρχον τοῖς ζῴοις.

ceptions in their minds, ulterior knowledge grows up.[a] There are many such retentive animals, and they differ among themselves: with some of them reason or rational notions arise out of the perceptions retained; with others, it is not so. First, out of perception arises memory; next, out of memory of the same often repeated, arises experience, since many remembrances numerically distinct are summed up into one experience. Lastly, out of experience, or out of the universal notion, the *unum et idem* which pervades and characterizes a multitude of particulars, when it has taken rest and root in the mind, there arises the *principium* of art and science: of science, in respect to objects existent; of art, in respect to things generable.[b] And thus these mental habits or acquirements neither exist in our minds determined from the beginning, nor do they spring from

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[a] Analyt. Post. II. xix. p. 99, b. 37: *ὅσοις μὲν οὖν μὴ ἐγγίνεται, ἢ ὅλως ἢ περὶ ἃ μὴ ἐγγίνεται, οὐκ ἔστι τούτοις γνῶσις ἔξω τοῦ αἰσθάνεσθαι· ἐν οἷς δ' ἔνεστιν αἰσθανομένοις ἔχειν ἔτι ἐν τῇ ψυχῇ. πολλῶν δὲ τοιούτων γινομένων ἤδη διαφορά τις γίνεται, ὥστε τοῖς μὲν γίνεσθαι λόγον ἐκ τῆς τῶν τοιούτων μονῆς, τοῖς δὲ μή.* Compare Analyt. Poster. I. p. 81, a. 38, seq., where the dependence of Induction on the perceptions of sense is also affirmed. See Themistius, pp. 50-51, ed. Spengel. The first chapter of the Metaphysica (p. 981), contains a striking account of this generation of universal notions from memory and comparison of sensible particulars: *γίνεται δὲ τέχνη, ὅταν ἐκ πολλῶν τῆς ἐμπειρίας ἐννοημάτων μία καθόλου γένηται περὶ τῶν ὁμοίων ὑπόληψις* ("*intellecta similitudo*"). Also in the Physica VII. p. 247, b. 20 (in the Paraphrase of Themistius, as printed in the Berlin edition, at bottom of page): *ἐκ γὰρ τῆς κατὰ μέρος ἐμπειρίας τὴν καθόλου λαμβάνομεν ἐπιστήμην.*

[b] Analyt. Post. II. xix. p. 100, a. 3-10: *ἐκ μὲν οὖν αἰσθήσεως γίνεται μνήμη, ὥσπερ λέγομεν, ἐκ δὲ μνήμης πολλάκις τοῦ αὐτοῦ γινομένης ἐμπειρία· αἱ γὰρ πολλαὶ μνῆμαι τῷ ἀριθμῷ ἐμπειρία μία ἐστίν. ἐκ δ' ἐμπειρίας, ἢ ἐκ παντὸς ἠρεμήσαντος τοῦ καθόλου ἐν τῇ ψυχῇ τοῦ ἑνὸς παρὰ τὰ πολλά, ὃ ἂν ἐν ἅπασιν ἓν ἐνῇ ἐκείνοις τὸ αὐτό, τέχνης ἀρχὴ καὶ ἐπιστήμης· ἐὰν μὲν περὶ γένεσιν, τέχνης, ἐὰν δὲ περὶ τὸ ὄν, ἐπιστήμης.*

A theory very analogous to this (respecting the gradual generation of scientific universal notions in the mind out of the particulars of sense) is stated in the Phædon of Plato, ch. xlv. p. 96, B., where Sokrates reckons up the unsuccessful tentatives which he had made in philosophy: *καὶ πότερον τὸ αἷμά ἐστιν ᾧ φρονοῦμεν, ἢ ὁ ἀήρ, ἢ τὸ πῦρ, ἢ τούτων μὲν οὐδέν, ὁ δὲ ἐγκέφαλός ἐστιν ὁ τὰς αἰσθήσεις παρέχων τοῦ ἀκούειν καὶ ὁρᾶν καὶ ὀσφραίνεσθαι, ἐκ τούτων δὲ γίγνοιτο μνήμη καὶ δόξα, ἐκ δὲ μνήμης καὶ δόξης, λαβούσης τὸ ἠρεμεῖν, κατὰ ταῦτα γίγνεσθαι ἐπιστήμην.*

Boethius says, Comm. in Ciceronis Topica, p. 805:—"Plato ideas quasdam esse ponebat, id est, species incorporeas, substantiasque constantes et per se ab aliis naturæ ratione separatus, ut hoc ipsum *homo*, quibus participantes cæteræ res homines vel animalia fierent. At vero Aristoteles nullas putat extra esse substantias; sed *intellectam similitudinem plurimorum inter se differentium substantialem*, genus putat esse vel speciem. Nam cum homo et equus differunt rationabilitate et irrationabilitate, horum *intellecta similitudo* efficit genus. Ergo communitas quædam et plurimorum inter se differentium similitudo *notio* est; cujus notionis aliud *genus* est, aliud *forma*. Sed quoniam *similium intelligentia* est omnis notio, in rebus vero similibus necessaria est differentiarum discretio, idcirco indiget notio quadam enodatione ac divisione; velut ipse intellectus animalis sibi ipsi non sufficit," &c.

The phrase *intellecta similitudo plurimorum* embodies both Induction and intellection in one. A like doctrine appears in the obscure passages of Aristotle, De Animâ, III. viii. p. 429, b. 10; also p. 432, a. 3: *ὁ νοῦς, εἶδος εἰδῶν, καὶ ἡ αἴσθησις, εἶδος αἰσθητῶν. ἐπεὶ δὲ οὐδὲ πρᾶγμα οὐθέν ἐστι παρὰ τὰ μεγέθη, ὡς δοκεῖ, τὰ αἰσθητὰ κεχωρισμένον, ἐν τοῖς εἴδεσι τοῖς αἰσθητοῖς τὰ νοητά ἐστιν.*

other acquirements of greater cognitive efficacy. They spring from sensible perception; and we may illustrate their growth by what happens in the panic of a terrified host, where first one runaway stops in his flight, then a second, then a third, until at last a number docile to command is collected. One characteristic feature of the mind is to be capable of this process.[a]

Aristotle proceeds to repeat the illustration in clearer terms—at least in terms which he thinks clearer.[b] We perceive the particular individual; yet sensible perception is of the universal in the particular (as, for example, when Kallias is before us, we perceive man, not the man Kallias). Now, when one of a set of particulars dwells some time in the mind, first an universal notion arises; next, more particulars are perceived and detained, and universal notions arise upon them more and more comprehensive, until at last we reach the highest stage—the most universal and simple. From Kallias we rise to man; from such and such an animal, to animal *in genere;* from animal *in genere*, still higher, until we reach the highest or indivisible genus.[c] Hence it is plain that the first and highest *principia* can become known to us only by Induction; for it is by this process that sensible perception builds up in us the Universal.[d] Now among

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[a] Analyt. Post. II. xix. p. 100, a. 10-14: *οὔτε δὴ ἐνυπάρχουσιν ἀφωρισμέναι αἱ ἕξεις, οὔτ' ἀπ' ἄλλων ἕξεων γίνονται γνωριμωτέρων, ἀλλ' ἀπὸ αἰσθήσεως,—ἡ δὲ ψυχὴ ὑπάρχει τοιαύτη οὖσα οἵα δύνασθαι πάσχειν τοῦτο.*

The varieties of intellectual ἕξεις enumerated by Aristotle in the sixth book of the Nikomachean Ethica, are elucidated by Alexander in his Comment. on the Metaphysica, (A. p. 981) pp. 7, 8, Bonitz. The difference of ἕξις and διάθεσις, the durable condition as contrasted with the transient, is noted in Categoriæ. pp. 8, 9. See also Eth. Nikom. II. i. ii. pp. 1103, 4.

[b] Analyt. Post. II. xix. p. 100, a. 14: *ὃ δ' ἐλέχθη μὲν πάλαι, οὐ σαφῶς δὲ ἐλέχθη, πάλιν εἴπωμεν.*

Waitz supposes that Aristotle here refers to a passage in the first book of the Analytica Posteriora, c. xxxi. p. 87, b. 30. M. Barthélemy St. Hilaire thinks (p. 290) that reference is intended to an earlier sentence of this same chapter. Neither of these suppositions seems to suit (least of all the last) with the meaning of *πάλαι*. But whichever he meant, Aristotle has not done much *to clear up* what was obscure in the antecedent statements.

[c] Analyt. Post. II. xix. p. 100, a. 15: *στάντος γὰρ τῶν ἀδιαφόρων ἑνός, πρῶτον μὲν ἐν τῇ ψυχῇ καθόλου (καὶ γὰρ αἰσθάνεται μὲν τὸ καθ' ἕκαστον, ἡ δ' αἴσθησις τοῦ καθόλου ἐστίν, οἷον ἀνθρώπου, ἀλλ' οὐ Καλλίου ἀνθρώπου) πάλιν δ' ἐν τούτοις ἵσταται, ἕως ἂν τὰ ἀμερῆ στῇ καὶ τὰ καθόλου, οἷον τοιονδὶ ζῷον, ἕως ζῷον· καὶ ἐν τούτῳ ὡσαύτως.*

These words are obscure: *τὰ ἀμερῆ* must mean the highest genera; indivisible, *i.e.* being a *minimum* in respect of *comprehension*. Instead of *τὰ καθόλου*, we might have expected *τὰ μάλιστα καθόλου*, or, perhaps, that *καὶ* should be omitted. Trendelenburg comments at length on this passage, Arist. De Animâ Comment. pp. 170-174.

[d] Analyt. Post. II. xix. p. 100, b. 3: *δῆλον δὴ ὅτι ἡμῖν τὰ πρῶτα ἐπαγωγῇ γνωρίζειν ἀναγκαῖον· καὶ γὰρ καὶ αἴσθησις οὕτω τὸ καθόλου ἐμποιεῖ.* Compare, supra, Analyt. Post. I. xviii. p. 81, b. 1. Some commentators contended that Aristotle did not mean to ascribe an inductive origin to the common Axioms properly so called, but only to the special *principia* belonging to each science. Zabarella refutes this doctrine, and maintains that the Axioms (Dignitates) are derived from Induction (Comm. in Analyt. Post. II. xix. p. 649, ed. Venet., 1617):—"Quum igitur inductio non sit proprie discursus, nec ratio, jure dicit Aristoteles principiorum notitiam non esse cum ratione, quia non ex aliis innotescunt, sed ex

those intellective habits or acquirements, whereby we come to apprehend truth, there are some (Science and Noûs) that are uniformly and unerringly true, while others (Opinion and Ratiocination) admit an alternative of falsehood.[a] Comparing Science with Noûs, the latter, and the latter only, is more accurate and unerring than Science. But all Science implies demonstration, and all that we know by Science is conclusions deduced by demonstration. We have already said that the *principia* of these demonstrations cannot be themselves demonstrated, and therefore cannot be known by Science; we have also said that they must be known more accurately than the conclusions. How then can these *principia* themselves be known? They can be known only by Noûs, and from particulars. It is from the *principia* known by Noûs, with the maximum of accuracy, that Science demonstrates her conclusions. Noûs is the great *principium* of Science.[b]

The manner in which Aristotle here describes how the *principia* of Syllogism become known to the mind deserves particular attention. The march up to *principia* is not only different from, but the reverse of, the march down from *principia;* like the athlete who runs first to the end of the stadium, and then back.[c] Generalizing or universalizing is an acquired intellectual habit or permanent endowment; growing out of numerous particular acts or judgments of sense, remembered, compared, and coalescing into one mental group through associating resemblance. As the ethical, moral, practical habits, are acquirements growing out of a repetition of particular acts, so also the intellectual,

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seipsis dum per inductionem innotescunt. Propterea in illa propositione, quæ in initio primilibri legitur, sub doctrina discursiva cognitio principiorum non comprehenditur, quia non est dianoëtica. Hoc, quod modo diximus, si nonnulli advertissent, fortasse non negassent principia communia, quæ dicuntur Dignitates, inductione cognosci. Dixerunt enim Aristotelem hic de principiis loquentem sola principia propria considerasse, quæ cum non proprio lumine cognoscantur, inductione innotescunt; at Dignitates (inquiunt) proprio lumine ab intellectu nostro cognoscuntur per solam terminorum intelligentiam, ut quod omne totum majus est suâ parte; hoc enim non magis est evidens sensui in particulari, quam intellectui in universali, proinde inductione non eget. Sed hanc sententiam hic Averroes refutat, dicens hæc quoque inductione cognosci, sed non animadverti nobis tempus hujus inductionis; id enim omnino confitendum est, omnem intellectualem doctrinam à sensu originem ducere, et nihil esse in intellectu quod prius in sensu non fuerit, ut ubique asserit Aristoteles."

To the same purpose Zabarella expresses himself in an earlier portion of his Commentary on the Analyt. Post., where he lays it down that the truth of the proposition, Every whole is greater than its part, is known from antecedent knowledge of particulars by way of Induction. Compare the Scholion of Philoponus, ad Analyt. Post. p. 225, a. 32, Brand., where the same is said about the Axiom, Things equal to the same are equal to each other.

[a] Analyt. Post. II. xix. p. 100, b. 5: ἐπεὶ δὲ τῶν περὶ τὴν διάνοιαν ἕξεων, αἷς ἀληθεύομεν, αἱ μὲν ἀεὶ ἀληθεῖς εἰσίν, αἱ δὲ ἐπιδέχονται τὸ ψεῦδος, &c.

[b] Ibid. fin. p. 100.

[c] Aristot. Eth. Nikom. I. iv. p. 1095, b. 1.

theorizing habits are mental results generated by a multitude of particular judgments of sense, retained and compared, so as to imprint upon the mind a lasting stamp of some identity common to all. The Universal (*notius naturâ*) is thus generated in the mind by a process of Induction out of particulars which are *notiora nobis;* the potentiality of this process, together with sense and memory, is all that is innate or connatural.

The *principia*, from which the conclusions of Syllogism are deduced, being thus obtained by Induction, are, in Aristotle's view, appreciated by, or correlated with, the infallible and unerring Noûs or Intellect.[a] He conceives repeated and uncontradicted Induction as carrying with it the maximum of certainty and necessity: the syllogistic deductions constituting Science he regards as also certain; but their certainty is only derivative, and the *principia* from which they flow he ranks still higher, as being still more certain.[b] Both the one and the other he pointedly contrasts with Opinion and Calculation, which he declares to be liable to error.

Aristotle had inherited from Plato this doctrine of an infallible Noûs or Intellect, enjoying complete immunity from error. But, instead of connecting it (as Plato had done) with reminiscences of an anterior life among the Ideas, he assigned to it a position as terminus and correlate to the process of Induction.[c] The like postulate and pretension passed afterwards to the Stoics, and

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[a] The passages respecting ἀρχαὶ or *principia*, in the Nikomachean Ethica (especially Books I. and VI.), are instructive as to Aristotle's views. The *principia* are universal notions and propositions, not starting up ready-made nor as original promptings of the intellect, but gradually built up out of the particulars of sense and Induction, and repeated particular acts. They are judged and sanctioned by Νοῦς or Intellect, but it requires much care to define them well. They belong to the ὅτι, while demonstration belongs to the διότι. Eth. Nik. I. vii. p. 1098, a. 33: *οὐκ ἀπαιτητέον δ' οὐδὲ τὴν αἰτίαν ἐν ἅπασιν ὁμοίως, ἀλλ' ἱκανὸν ἔν τισι τὸ ὅτι δειχθῆναι καλῶς, οἷον καὶ περὶ τὰς ἀρχάς· τὸ δ' ὅτι πρῶτον καὶ ἀρχή. τῶν ἀρχῶν δ' αἱ μὲν ἐπαγωγῇ θεωροῦνται, αἱ δ' αἰσθήσει, αἱ δ' ἐθισμῷ τινι, καὶ ἄλλαι δ' ἄλλως. μετιέναι δὲ πειρατέον ἑκάστας ᾗ πεφύκασιν, καὶ σπουδαστέον ὅπως ὁρισθῶσι καλῶς· μεγάλην γὰρ ἔχουσι ῥοπὴν πρὸς τὰ ἑπόμενα.*

Compare Eth. Nik. VI. iii. p. 1139, b. 25, where the Analytica is cited by name—*ἡ μὲν δὴ ἐπαγωγὴ ἀρχή ἐστι καὶ τοῦ καθόλου, ὁ δὲ συλλογισμὸς ἐκ τῶν καθόλου· εἰσὶν ἄρα ἀρχαὶ ἐξ ὧν ὁ συλλογισμός, ὧν οὐκ ἔστι συλλογισμός· ἐπαγωγὴ ἄρα.*—ib. p. 1141, a. 7: *λείπεται νοῦν εἶναι τῶν ἀρχῶν.*—p. 1142, a. 25: *ὁ μὲν γὰρ νοῦς τῶν ὅρων, ὧν οὐκ ἔστι λόγος.*—p. 1143, b. 1.

[b] Analyt. Post. I. ii. p. 72, a. 37: *τὸν δὲ μέλλοντα ἕξειν τὴν ἐπιστήμην τὴν δι' ἀποδείξεως οὐ μόνον δεῖ τὰς ἀρχὰς γνωρίζειν καὶ μᾶλλον αὐταῖς πιστεύειν ἢ τῷ δεικνυμένῳ, ἀλλὰ μηδ' ἄλλο αὐτῷ πιστότερον εἶναι μηδὲ γνωριμώτερον τῶν ἀντικειμένων ταῖς ἀρχαῖς, ἐξ ὧν ἔσται συλλογισμὸς ὁ τῆς ἐναντίας ἀπάτης, εἴπερ δεῖ τὸν ἐπιστάμενον ἁπλῶς ἀμετάπειστον εἶται.*

[c] Ibid. iii. p. 72, b. 20-30. *καὶ οὐ μόνον ἐπιστήμην ἀλλὰ καὶ ἀρχὴν ἐπιστήμης εἶναί τινά φαμεν, ᾗ τοὺς ὅρους γνωρίζομεν.*

Themistius, p. 14: *ὧν δὴ ἄρχει πάλιν ὁ νοῦς ᾧ τοὺς ὅρους θηρεύομεν, ἐξ ὧν συγκεῖται τὰ ἀξιώματα.*

The Paraphrase of Themistius (pp. 100-104) is clear and instructive, where he amplifies the last chapter, and explains Νοῦς as the generalizing or universalizing aptitude of the soul, growing up gradually out of the particulars furnished by Sense and Induction.

various other philosophical sects: they could not be satisfied without finding infallibility somewhere. It was against this pretension that the Academics and Sceptics entered their protest; contending, on grounds sometimes sophistical but often very forcible, that it was impossible to escape from the region of fallibility, and that no criterion of truth, at once universal and imperative, could be set up.

It is to be regretted that Aristotle should have contented himself with proclaiming this Inductive process as an ideal, culminating in the infallible Noûs; and that he should only have superficially noticed those conditions under which it must be conducted in reality, in order to avoid erroneous or uncertified results. This is a deficiency however which has remained unsupplied until the present century.[a]

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[a] Sir W. Hamilton, Lectures on Logic, Vol. III. Lect. xix. p. 380, says:—"In regard to simple syllogisms, it was an original dogma of the Platonic School, and an early dogma of the Peripatetic, that philosophy (science strictly so-called) was only conversant with, and was exclusively contained in, universals; and the doctrine of Aristotle, which taught that all our general knowledge is only an induction from an observation of particulars, was too easily forgotten or perverted by his followers. It thus obtained almost the force of an acknowledged principle, that everything to be known must be known under some general form or notion. Hence the exaggerated importance attributed to definition and deductions, it not being considered that we only take out of a general notion what we had previously placed therein, and that the amplification of our knowledge is not to be sought for from above but from below,—not from speculation about abstract generalities, but from the observation of concrete particulars. But however erroneous and irrational, the persuasion had its day and influence, and it perhaps determined, as one of its effects, the total neglect of one half, and that not the least important half, of the reasoning process. For while men thought only of looking upward to the more extensive notions, as the only objects and the only media of science, they took little heed of the more comprehensive notions, and absolutely contemned individuals, as objects which could neither be scientifically known in themselves nor supply the conditions of scientifically knowing aught besides. The Logic of Comprehension and of Induction was therefore neglected or ignored,—the Logic of Extension and Deduction exclusively cultivated, as alone affording the rules by which we might evolve higher notions into their subordinate concepts."

(Hamilton, in this passage, considers the Logic of *Induction* to be the same as the Logic of *Comprehension*.)

CHAPTER IX.

TOPICA.

I.

IN treating of the Analytica Posteriora I have already adverted, in the way of contrast, to the Topica; and, in now approaching the latter work, I must again bring the same contrast before the mind of the reader.

The treatise called Topica (including that which bears the separate title De Sophisticis Elenchis, but which is properly its Ninth or last Book, winding up with a brief but memorable recapitulation of the Analytica and Topica considered as one scheme) is of considerable length, longer than the Prior and Posterior Analytics taken together. It contains both a theory and precepts of Dialectic; also, an analysis of the process called by Aristotle Sophistical Refutation, with advice how to resist or neutralize it.

All through the works of Aristotle, there is nothing which he so directly and emphatically asserts to be his own original performance, as the design and execution of the Topica: *i.e.*, the deduction of Dialectic and Sophistic from the general theory of Syllogism. He had to begin from the beginning, without any model to copy or any predecessor to build upon: and in every sort of work, he observes justly, the first or initial stages are the hardest.[a] In regard to Rhetoric much had been done before him; there were not only masters who taught it, but writers who theorized well or ill, and laid down precepts about it; so that, in his treatise on that subject, he had only to enlarge and improve upon pre-existing suggestions. But in regard to Dialectic as he conceives it—in its contrast with Demonstration and Science on the one hand, and in its analogy or kinship with Rhetoric on the other—nothing whatever had been done. There were, indeed, teachers of contentious dialogue, as well as of

[a] Aristot. Sophist. Elench. xxxiv. p. 183, b. 22: *μέγιστον γὰρ ἴσως ἀρχὴ παντός, ὥσπερ λέγεται· διὸ καὶ χαλεπώτατον. ὅσῳ γὰρ κράτιστον τῇ δυνάμει, τοσούτῳ μικρότατον ὂν τῷ μεγέθει χαλεπώτατόν ἐστιν ὀφθῆναι.*

Rhetoric;[a] but these teachers could do nothing better than recommend to their students dialogues or orations ready made, to be learnt by heart. Such a mode of teaching (he says), though speedy, was altogether unsystematic. The student acquired no knowledge of the art, being furnished only with specimens of art-results. It was as if a master, professing to communicate the art of making the feet comfortable, taught nothing about leather-cutting or shoe-making, but furnished his pupils with different varieties of ready-made shoes; thus supplying what they wanted for the protection of the feet, but not imparting to them any power of providing such protection for themselves.[b] "In regard to the process of syllogizing (says Aristotle, including both Analytic and Dialectic) I found positively nothing said before me: I had to work it out for myself by long and laborious research."[c]

This is one of the few passages, throughout the philosopher's varied and multitudinous works, in which he alludes to his own speciality of method. It is all the more interesting on that account. If we turn back to Sokrates and Plato, we shall understand better what the innovation operated by Aristotle was; what the position of Dialectic had been before his time, and what it became afterwards.

In the minds of Sokrates and Plato, the great antithesis was between Dialectic and Rhetoric—interchange of short question and answer before a select audience, as contrasted with long continuous speech addressed to a miscellaneous crowd with known established sentiments and opinions, in the view of persuading them on some given interesting point requiring decision. In such Dialectic Sokrates was a consummate master; passing most of his long life in the market-place and palæstra, and courting disputation with every one. He made formal profession of ignorance, disclaimed all power of teaching, wrote nothing at all, and applied himself almost exclusively to the cross-examining *Elenchus*, by which he exposed and humiliated the ablest men not less than the vulgar. Plato, along with the other companions of Sokrates, imbibed the Dialectic of his master, and gave perpetuity to it in those inimitable dialogues which are still

[a] Sophist. Elench. xxxiv. p. 183, b. 34: ταύτης δὲ τῆς πραγματείας οὐ τὸ μὲν ἦν τὸ δ' οὐκ ἦν προεξειργασμένον, ἀλλ' οὐδὲν παντελῶς ὑπῆρχεν. καὶ γὰρ τῶν περὶ τοὺς ἐριστικοὺς λόγους μισθαρνούντων ὁμοία τις ἦν ἡ παίδευσις τῇ Γοργίου πραγματείᾳ· λόγους γὰρ οἱ μὲν ῥητορικοὺς οἱ δὲ ἐρωτητίκους ἐδίδοσαν ἐκμανθάνειν, εἰς οὓς πλειστάκις ἐμπίπτειν ᾠήθησαν ἑκάτεροι τοὺς ἀλλήλων λόγους.

[b] Ibid. xxxiv. p. 184, a. 2.

[c] Ibid. a. 7: καὶ περὶ μὲν τῶν ῥητορικῶν ὑπῆρχε πολλὰ καὶ παλαιὰ τὰ λεγόμενα, περὶ δὲ τοῦ συλλογίζεσθαι παντελῶς οὐδὲν εἴχομεν πρότερον ἄλλο λέγειν, ἀλλ' ἢ τριβῇ ζητοῦντες πολὺν χρόνον ἐπονοῦμεν.

preserved to us from his pen. He composed nothing but dialogues; thus giving expression to his own thoughts only under borrowed names, and introducing that of Sokrates very generally as chief spokesman. But Plato, though in some dialogues he puts into the mouth of his spokesman the genuine Sokratic disclaimer of all power and all purpose of teaching, yet does not do this in all. He sometimes assumes the didactic function; though he still adheres to the form of dialogue, even when it has become inconvenient and unsuitable. In the Platonic Republic Sokrates is made to alternate his own peculiar vein of cross-examination with a vein of dogmatic exposition not his own; but both one and the other in the same style of short question and answer. In the Leges becomes still more manifest the inconvenience of combining the substance of dogmatic exposition with the form of dialogue: the same remark may also be made about the Sophistes and Politicus; in which two dialogues, moreover, the didactic process is exhibited purely and exclusively as a logical partition, systematically conducted, of a genus into its component species. Long-continued speech, always depreciated by Plato in its rhetorical manifestations, is foreign to his genius even for purposes of philosophy: the very lecture on cosmogony which he assigns to Timæus, and the mythical narrative (unfinished) delivered by Kritias, are brought into something like the form of dialogue by a prefatory colloquy specially adapted for that end.

It thus appears that, while in Sokrates the dialectic process is exhibited in its maximum of perfection, but disconnected altogether from the didactic, which is left unnoticed,—in Plato the didactic process is recognized and postulated, but is nevertheless confounded with or absorbed into the dialectic, and admitted only as one particular, ulterior, phase and manifestation of it. At the same time, while both Sokrates and Plato bring out forcibly the side of antithesis between Rhetoric and Dialectic, they omit entirely to notice the side of analogy or parallelism between them. On both these points Aristotle has corrected the confusion, and improved upon the discrimination, of his two predecessors. He has pointedly distinguished the dialectic process from the didactic; and he has gone a step farther, furnishing a separate theory and precepts both for the one and for the other. Again, he has indicated the important feature of analogy between Dialectic and Rhetoric, in which same feature both of them contrast with Didactic—the point not seized either by Sokrates or by Plato.

Plato, in his Sokratic dialogues or dialogues of Search, has

given admirable illustrative specimens of that which Sokrates understood and practised orally as Dialectic. Aristotle, in his Topica, has in his usual vein of philosophy theorized on this practice as an art. He had himself composed dialogues, which seem as far as we can judge from indirect and fragmentary evidence, to have been Ciceronian or rhetorical colloquies—a long pleading *pro* followed by a long pleading *con*, rather than examples of Sokratic brachylogy and cross-examination. But his theory given in the Topica applies to genuine Sokratic fencing, not to the Ciceronian alternation of set speeches. He disallows the conception of Plato, that Dialectic is a process including not merely dispute but all full and efficacious employment of general terms and ideas for purposes of teaching: he treats this latter as a province by itself, under the head of Analytic: and devotes the Topica to the explanation of argumentative debate, pure and simple. He takes his departure from the Syllogism, as the type of deductive reasoning generally; the conditions under which syllogistic reasoning is valid and legitimate, having been already explained in his treatise called Analytica Priora. So obtained, and regulated by those conditions, the Syllogism may be applied to one or other of two distinct and independent purposes:—(1) To Demonstration or Scientific Teaching, which we have had before us in the last two chapters, commenting on the Analytica Posteriora; (2) To Dialectic, or Argumentative Debate, which we are now about to enter on in the Topica.

The Dialectic Syllogism, explained in the Topica, has some points in common with the Demonstrative Syllogism, treated in the Analytica Posteriora. In both, the formal conditions are the same, and the conclusions will certainly be true, if the premisses are true; in both, the axioms of deductive reasoning are assumed, namely, the maxims of Contradiction and Excluded Middle. But, in regard to the subject-matter, the differences between them are important. The Demonstrative Syllogism applies only to a small number of select sciences, each having special *principia* of its own, or primary, undemonstrable truths, obtained in the first instance by induction from particulars. The premisses being thus incontrovertibly certain, the conclusions deduced are not less certain; there is no necessary place for conflicting arguments or counter-syllogisms, although in particular cases paralogisms may be committed, and erroneous propositions or majors for syllogism may be assumed. On the contrary, the Dialectic Syllogism applies to all matters without exception; the premisses on which it proceeds are neither

obtained by induction, nor incontrovertibly certain, but are borrowed from some one among the varieties of accredited or authoritative opinion. They may be opinions held by the multitude of any particular country, or by an intelligent majority, or by a particular school of philosophers or wise individuals, or from transmission as a current proverb or dictum of some ancient poet or seer. From any one of these sources the dialectician may borrow premisses for syllogizing. But it often happens that the premisses which they supply are disparate, or in direct contradiction to each other; and none of them is entitled to be considered as final or peremptory against the rest. Accordingly, it is an essential feature of Dialectic as well as of Rhetoric that they furnish means of establishing conclusions contrary or contradictory, by syllogisms equally legitimate.[a] The dialectic procedure is from its beginning intrinsically contentious, implying a debate between two persons, one of whom sets up a thesis to defend, while the other impugns it by interrogation: the assailant has gained his point, if he can reduce the defendant to the necessity of contradicting himself; while the defendant on his side has to avoid giving any responses which may drive him to the necessity of such contradiction.

Aristotle takes great pains to enforce the separation both of Dialectic and Rhetoric from Science or Instruction with its purpose of teaching or learning. He disapproves of those (seemingly intending Plato) who seek to confound the two. Dialectic and Rhetoric (he says) have for their province words and discourse, not facts or things: they are not scientific or didactic processes, but powers or accomplishments of discourse; and whoever tries to convert them into means of teaching or learning particular subjects, abolishes their characteristic feature and restricts their universality of application.[b] Both of them deal not with scientific facts, but with the sum total of accredited opinions, though each for its own purpose: both of them lay hold of any one among the incoherent aggregate of accepted generalities, suitable for the occasion; the Dialectician trying

[a] Aristot. Rhetoric. I. i. p. 1355, a. 29: ἔτι δὲ τἀναντία δεῖ δύνασθαι πείθειν, καθάπερ καὶ ἐν τοῖς συλλογισμοῖς, οὐχ ὅπως ἀμφότερα πράττωμεν, (οὐ γὰρ δεῖ τὰ φαῦλα πείθειν), ἀλλ' ἵνα μήτε λανθάνῃ πῶς ἔχει, καὶ ὅπως ἄλλου χρωμένου τοῖς λόγοις μὴ δικαίως αὐτοὶ λύειν ἔχωμεν. τῶν μὲν οὖν ἄλλων τεχνῶν οὐδεμία τἀναντία συλλογίζεται· ἡ δὲ διαλεκτικὴ καὶ ἡ ῥητορικὴ μόναι τοῦτο ποιοῦσιν· ὁμοίως γάρ εἰσιν ἀμφότεραι τῶν ἐναντίων.

[b] Ibid. iv. 2, p. 1359, b. 12: ὅσῳ δ' ἄν τις ἢ τὴν διαλεκτικὴν ἢ ταύτην (τὴν ῥητορικὴν) μὴ καθάπερ ἂν δυνάμεις, ἀλλ' ἐπιστήμας, πειρᾶται κατασκευάζειν, λήσεται τὴν φύσιν αὐτῶν ἀφανίσας, τῷ μεταβαίνειν ἐπισκευάζων εἰς ἐπιστήμας ὑποκειμένων τινῶν πραγμάτων, ἀλλὰ μὴ μόνον λόγων.

to force his opponent into an inconsistency, the Rhetor trying to persuade his auditors into a favourable decision. Neither the one nor the other goes deeper than opinion for his premisses, nor concerns himself about establishing by induction primary or special *principia*, such as may serve for a basis of demonstration.

In every society there are various floating opinions and beliefs, each carrying with it a certain measure of authority, often inconsistent with each other, not the same in different societies, nor always the same even in the same society. Each youthful citizen, as he grows to manhood, imbibes these opinions and beliefs insensibly and without special or professional teaching.[a] The stock of opinions thus transmitted would not be identical even at Athens and Sparta: the difference would be still greater, if we compared Athens with Rome, Alexandria, or Jerusalem. Such opinions all carry with them more or less of authority, and it is from them that the reasonings of common life, among unscientific men, are supplied. The practice of dialectical discussion, prevalent in Athens during and before the time of Aristotle, was only a more elaborate, improved, and ingenious exhibition of this common talk; proceeding on the same premisses, but bringing them together from a greater variety of sources, handling them more cleverly, and having for its purpose to convict an opponent of inconsistency. The dialecticians dwelt exclusively in the region of these received opinions; and the purpose of their debates was to prove inconsistency, or to repel the proof of inconsistency, between one opinion and another.

This dialectic debate, which Aristotle found current at Athens, he tries in the Topica to define and reduce to system. The dialectician must employ Syllogism; and we are first taught to distinguish the Syllogism that he employs from others. The Dialectic syllogism is discriminated on one side from the Demonstrative, on the other from the Eristic (or litigious); also from the scientific Paralogism or Pseudographeme. This discrimination is founded on the nature of the evidence belonging to the premisses. The Demonstrative syllogism (which we have already gone through in the Analytica Posteriora) has premisses noway dependent upon opinion: it deduces conclusions from true first principles, obtained by Induction in each science, and

[a] For an acute and interesting description of this unsystematic transmission of opinions, see, in the Protagoras of Plato, the speech put into the mouth of Protagoras, pp. 323-325. See also 'Plato and the Other Companions of Sokrates,' Vol. II. ch. xxi. p. 45, seq.

different in each different science. The Dialectic syllogism does not aspire to any such evidence, but borrows its premisses from Opinion of some sort; accredited either by numbers, or by wise individuals, or by some other authoritative holding. As this evidence is very inferior to that of the demonstrative syllogism, so again it is superior to that of the third variety—the Eristic syllogism. In this third variety,[a] the premisses do not rest upon any real opinion, but only on a fallacious appearance or simulation of opinion; insomuch that they are at once detected as false, by any person even of moderate understanding; whereas (according to Aristotle) no real opinion ever carries with it such a merely superficial semblance, or is ever so obviously and palpably false. A syllogism is called Eristic also when it is faulty in form, though its premisses may be borrowed from real opinion, or when it is both faulty in form and false in the matter of the premisses. Still a fourth variety of syllogism is the scientific Paralogism: where the premisses are not borrowed from any opinion, real or simulated, but belong properly to the particular science in which they are employed, yet nevertheless are false or erroneous.[b]

Upon the classification of syllogisms here set forth by Aristotle, we may remark that the distinction between the Demonstrative and the Dialectic is true and important; but that between the Dialectic and the Eristic is faint and unimportant; the class called Eristic syllogisms being apparently introduced merely to create a difference, real or supposed, between the Dialectician and the Sophist, and thus to serve as a prelude to the last book of this treatise, entitled Sophistici Elenchi. The class-title Eristic (or litigious) is founded upon a supposition of dishonest intentions on the part of the disputant; but it is unphilosophical to make this the foundation of a class, and to rank the same syllogism in the class, or out of it, according as the intentions of the disputant who employs it are honest or dishonest. Besides, a portion of Aristotle's definition tells us that the Eristic syllogism is one of which the premisses can impose upon no one; being such that a very ordinary man can at once detect their falsity. The dishonest disputant, surely, would argue to little purpose, if he intentionally employed such premisses as these. Lastly, according to another portion of

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[a] Topic. I. p. 100, b. 23: *ἐριστικὸς δ' ἐστι συλλογισμὸς ὁ ἐκ φαινομένων ἐνδόξων, μὴ ὄντων δέ, καὶ ὁ ἐξ ἐνδόξων ἢ φαινομένων ἐνδόξων φαινόμενος. οὐ γὰρ πᾶν τὸ φαινόμενον ἔνδοξον καὶ ἔστιν ἔνδοξον. οὐθὲν γὰρ τῶν λεγομένων ἐνδόξων ἐπιπόλαιον ἔχει παντελῶς τὴν φαντασίαν, καθάπερ περὶ τὰς τῶν ἐριστικῶν λόγων ἀρχὰς συμβέβηκεν ἔχειν· παραχρῆμα γὰρ καὶ ὡς ἐπὶ τὸ πολὺ τοῖς καὶ μικρὰ συνορᾶν δυναμένοις κατάδηλος ἐν αὐτοῖς ἡ τοῦ ψεύδους ἐστὶ φύσις.*

[b] Ibid. i. p. 101, a. 5-17.

Aristotle's definition, every syllogism faulty in form, or yielding no legitimate conclusion at all, will fall under the class Eristic, and this he himself in another place explicitly states;[a] which would imply that the bad syllogism must always emanate from litigious or dishonest intentions. But in defining the Pseudographeme, immediately afterwards, Aristotle does not imply that the false scientific premiss affords presumption of litigious disposition on the part of those who advance it; nor does there seem any greater propriety in throwing all bad dialectic syllogisms under the general head of Eristic.

The dialectician, then, will carry on debate only by means of premisses sustained by real opinion; which not only always carry some authority, but are assumed as being never obviously fallacious; though often inconsistent with each other, and admitting of argumentation *pro* and *con*. These are what Aristotle calls *Endoxa;* opposed to *Adoxa*, or propositions which are discountenanced, or at least not countenanced, by opinion, and to *Paradoxa* (a peculiar variety of *Adoxa*),[b] or propositions which, though having ingenious arguments in their favour, yet are adverse to some proclaimed and wide-spread opinions, and thus have the predominant authority of opinion against them.

Of these three words, *Paradox* is the only one that has obtained a footing in modern languages, thanks to Cicero and the Latin authors. If the word *Endox* had obtained the like footing, we should be able to keep more closely to the thought and views of Aristotle. As it is, we are obliged to translate the Greek *Endoxon* as Probable, and *Adoxon* as Improbable:[c] which, though not incorrect, is neither suitable nor exactly coincident. *Probable* corresponds more nearly to what Aristotle (both in this treatise and in the Analytica) announces sometimes as τὸ ὡς ἐπὶ τὸ πολύ—that which happens in most cases but not in all, as distinguished from the universal and necessary on one side, and from the purely casual on the other;[d] sometimes, also, as τὸ εἰκός or τὸ σημεῖον. Now this is a different idea from (though it has a point of analogy with) the *Endoxon:* which is not necessarily true even in part, but may be wholly untrue; which always has some considerations against it, though there

[a] Topic. VIII. xii. p. 162, b. 4.

[b] Ibid. I. xi. p. 104, b. 24: περὶ ὧν λόγον ἔχομεν ἐναντίον ταῖς δόξαις.

[c] Aristotle gives a double meaning of ἄδοξον (Topic. VIII. ix. p. 160, b. 17):—1. That which involves absurd or strange consequences (ἄτοπα). 2. That which affords presumption of a bad disposition, such as others will disapprove—οἷον ὅτι ἡδονὴ τἀγαθὸν καὶ τὸ ἀδικεῖν βέλτιον τοῦ ἀδικεῖσθαι.

[d] Topic II. vi. p. 112, b. 1: ἐπεὶ δὲ τῶν πραγμάτων τὰ μὲν ἐξ ἀνάγκης ἐστί, τὰ δ' ὡς ἐπὶ τὸ πολύ, τὰ δ' ὁπότερ' ἔτυχεν, &c. Compare also Analyt. Post. I. xxx., et alib.

may be more in its favour; and which, lastly, may be different, or even opposite, in different ages and different states of society. When Josephus distinguished himself as a disputant in the schools of Jerusalem on points of law and custom,[a] his arguments must have been chiefly borrowed from the *Endoxa* or prevalent opinions of the time and place; but these must have differed widely from the *Endoxa* found and argued upon by the contemporaries of Aristotle at Athens. The *Endoxon* may indeed be rightly called probable, because, whenever a proposition is fortified by a certain body of opinion, Aristotle admits a certain presumption (greater or less) that it is true. But such probability is not essential to the *Endoxon:* it is only an accident or accompaniment (to use the Aristotelian phrase), and by no means an universal accompaniment. The essential feature of the *Endoxon* is, that it has acquired a certain amount of recognition among the mass of opinions and beliefs floating and carrying authority at the actual time and place. The English word whereby it is translated ought to express this idea, and nothing more; just as the correlative word Paradox does express its implication, approached from the other side. Unfortunately, in the absence of *Endox,* we have no good word for the purpose.

It is within this wide field of floating opinions that dialectical debate and rhetorical pleading are carried on. Dialectic supposes a questioner or assailant, and a respondent or defendant. The respondent selects and proclaims a problem or thesis, which he undertakes to maintain: the assailant puts to him successive questions, with the view of obtaining concessions which may serve as premisses for a counter-syllogism, of which the conclusion is contradictory or contrary to the thesis itself, or to some other antecedent premiss which the respondent has already conceded. It is the business of the respondent to avoid making any answers which may serve as premisses for such a counter-syllogism. If he succeeds in this, so as not to become implicated in any contradiction with himself, he has baffled his assailant, and gained the victory. There are, however, certain rules and conditions, binding on both parties, under which the debate must be carried on. It is the purpose of the Topica to indicate these rules; and, in accordance therewith, to advise both parties as to the effective conduct of their respective cases— as to the best thrusts and the best mode of parrying. The assailant is supplied with a classified catalogue of materials for questions, and with indications of the weak points which he is

[a] See Josephus, De Vitâ Suâ, c. ii.

to look out for in any new subject which may turn up for debate. He is farther instructed how to shape, marshal, and disguise his questions, in such a way that the respondent may least be able to foresee their ultimate bearing. The respondent, on his side, is told what he ought to look forward to and guard against. Such is the scope of the present treatise; the entire process being considered in the large and comprehensive spirit customary with Aristotle, and distributed according to the Aristotelian terminology and classification.

It is plain that neither the direct purpose of the debaters, nor the usual result of the debate, is to prove truth or to disprove falsehood. Such may indeed be the result occasionally; but the only certain result is, that an inconsistency is exposed in the respondent's manner of defending his thesis, or that the assailant fails in his purpose of showing up such inconsistency. Whichever way the debate may turn, no certain inference can be drawn as to the thesis itself: not merely as to whether it is true or false, but even as to whether it consists or does not consist with other branches of received opinions. Such being the case, what is the use or value of dialectic debate, or of a methodized procedure for conducting it? Aristotle answers this question, telling us that it is useful for three purposes.[a] First, the debate is a valuable and stimulating mental exercise; and, if a methodized procedure be laid down, both parties will be able to conduct it more easily as well as more efficaciously. Secondly, it is useful for our intercourse with the multitude;[b] for the procedure directs us to note and remember the opinions of the multitude, and such knowledge will facilitate our intercourse with them: we shall converse with them out of their own opinions, which we may thus be able beneficially to modify. Thirdly, dialectic debate has an useful though indirect bearing even upon the processes of science and philosophy, and upon the truths thereby acquired.[c] For it accustoms us to study the difficulties on both sides of every question, and thus assists us in detecting and discriminating truth and falsehood. Moreover, apart from this mode of usefulness, it opens a new road to the scrutiny of the first *principia* of each separate science. These *principia* can never be scrutinized through the truths of

[a] Topic. I. ii. p. 101, a. 26: ἔστι δὴ πρὸς τρία, πρὸς γυμνασίαν, πρὸς τὰς ἐντεύξεις, πρὸς τὰς κατὰ φιλοσοφίαν ἐπιστήμας.

[b] Ibid. a. 30: πρὸς δὲ τὰς ἐντεύξεις, διότι τὰς τῶν πολλῶν κατηριθμημένοι δόξας οὐκ ἐκ τῶν ἀλλοτρίων ἀλλ' ἐκ τῶν οἰκείων δογμάτων ὁμιλήσομεν πρὸς αὐτούς, μεταβιβάζοντες ὅ τι ἂν μὴ καλῶς φαίνωνται λέγειν ἡμῖν.

[c] Ibid. a. 34: πρὸς δὲ τὰς κατὰ φιλοσοφίαν ἐπιστήμας, &c.

the science itself, which presuppose them and are deduced from them. To investigate and verify them, is the appropriate task of First Philosophy. But Dialectic also, carrying investigation as it does everywhere, and familiarized with the received opinions on both sides of every subject, suggests many points of importance in regard to these *principia*.

The three heads just enumerated illustrate the discriminating care of Aristotle. The point of the first head is brought out often in the Platonic Dialogues of Search: the stimulus brought to bear in awakening dormant intellectual power, and in dissipating that false persuasion of knowledge which is the general infirmity of mankind, is frequently declared by Plato to be the most difficult, but the indispensable, operation of the teacher upon his pupil. Under the third head, Aristotle puts this point more justly than Plato, not as a portion of teaching, nor as superseding direct teaching, but as a preliminary thereunto; and it is a habit of his own to prefix this antecedent survey of doubts and difficulties on both sides, as a means of sharpening our insight into the dogmatic exposition which immediately follows.

Under the second head, we find exhibited another characteristic feature of Aristotle's mind—the value which he sets upon a copious acquaintance with received opinions, whether correct or erroneous. The philosophers of his day no longer talked publicly in the market-place and with every one indiscriminately, as Sokrates had done: scientific study, and the habit of written compositions naturally conducted them into a life apart, among select companions. Aristotle here indicates that such estrangement from the multitude lessened their means of acting beneficially on the multitude, and in the way of counteraction he prescribes dialectical exercise. His own large and many-sided observation, extending to the most vulgar phenomena, is visible throughout his works, and we know that he drew up a collection of current proverbs.[a]

Again, what we read under the third head shows that, while Aristotle everywhere declares Demonstration and teaching to be a process apart from Dialectic, he at the same time recognizes the legitimate function of the latter, for testing and verifying the *principia* of Demonstration;[b] which *principia* cannot be

[a] Diog. Laert. v. 26. Kephisodorus, the disciple of Isokrates, in defending his master, depreciated this Aristotelian collection; see in Athenæus II. lvi., comparing Schweighäuser's Animadversiones I. p. 406.

[b] Topic. I. ii. p. 101, b. 3: ἐξεταστικὴ γὰρ οὖσα πρὸς τὰς ἁπασῶν τῶν μεθόδων ἀρχὰς ὁδὸν ἔχει.

reached by Demonstration itself, since every demonstration presupposes them. He does not mean that these *principia* can be proved by Dialectic, for Dialectic does not prove any thing; but it is necessary as a test or scrutinizing process to assure us that all the objections capable of being offered against them can be met by sufficient replies. In respect of universal competence and applicability, Dialectic is the counterpart, or rather the tentative companion and adjunct, of what Aristotle calls First Philosophy or Ontology; to which last he assigns the cognizance of *principia*, as we shall see when we treat of the Metaphysica.[a] Dialectic (he repeats more than once) is not a definite science or body of doctrine, but, like rhetoric or medicine, a practical art or ability of dealing with the ever varying situations of the dialogue; of imagining and enunciating the question proper for attack, or the answer proper for defence, as the case may be. As in the other arts, its resources are not unlimited. Nor can the dialectician, any more than the rhetor or the physician, always guarantee success. Each of them has an end to be accomplished; and if he employs for its accomplishment the best means that the situation permits, he must be considered a master of his own art and procedure.[b] To detect truth, and to detect what is like truth, belong (in Aristotle's judgment) to the same mental capacity. Mankind have a natural tendency towards truth, and the common opinions therefore are, in most cases, coincident with truth. Accordingly, the man who divines well in regard to verisimilitude, will usually divine well in regard to truth.[c]

The subject-matter of dialectic debate, speaking generally, consists of Propositions and Problems, to be propounded as questions by the assailant and to be admitted or disallowed by the defendant. They will relate either to *Expetenda* and *Fugienda*, or they must bear, at least indirectly, upon some point of scientific truth or observed cognition.[d] They will be either ethical, physical, or logical; class-terms which Aristotle declines to define, contenting himself with giving an example to illustrate each of them, while adding that the student should collect other

[a] Metaphys. Γ. iii. p. 1005, a. 20-b. 10; Γ. ii. p. 1004, b. 15-30.

[b] Topic. I. iii. p. 101, b. 5: ἕξομεν δὲ τελέως τὴν μέθοδον, ὅταν ὁμοίως ἔχωμεν ὥσπερ ἐπὶ ῥητορικῆς καὶ ἰατρικῆς καὶ τῶν τοιούτων δυνάμεων. τοῦτο δ' ἐστὶ τὸ ἐκ τῶν ἐνδεχομένων ποιεῖν ἃ προαιρούμεθα. οὔτε γὰρ ὁ ῥητορικὸς ἐκ παντὸς τρόπου πείσει, οὔθ' ὁ ἰατρικὸς ὑγιάσει· ἀλλ' ἐὰν τῶν ἐνδεχομένων μηδὲν παραλίπῃ, ἱκανῶς αὐτὸν ἔχειν τὴν ἐπιστήμην φήσομεν.

The word ἐπιστήμην in the last line is used loosely, since Aristotle, in the Rhetorica (p. 1359, b. 12), explicitly states that Rhetoric and Dialectic are not to be treated as ἐπιστήμας but as mere δυνάμεις.

[c] Rhetoric. I. i. p. 1355, a. 17.

[d] Topic. I. xi. p. 104, b. 2.

similar examples, and gradually familiarize himself with the full meaning of the general term, through such inductive comparison of particulars.[a]

But it is not every problem coming under one of these three heads that is fit for dialectic debate. If a man propounds as subject for debate, Whether we ought to honour the gods or to love our parents, he deserves punishment instead of refutation: if he selects the question, Whether snow is white or not, he must be supposed deficient in perceptive power.[b] What all persons unanimously believe, is unsuitable:[c] what no one believes is also unsuitable, since it will not be conceded by any respondent. The problem must have some doubts and difficulties, in order to afford scope for discussion; yet it must not be one of which the premisses are far-fetched or recondite, for that goes beyond the limits of dialectic exercise.[d] It ought to be one on which opinions are known to be held, both in the affirmative and in the negative; on which either the multitude differ among themselves, the majority being on one side, while yet there is an adverse minority; or some independent authority stands opposed to the multitude, such as a philosopher of eminence, a professional man or artist speaking on his own particular craft, a geometer or a physician on the specialities of his department. Matters such as these are the appropriate subjects for dialectic debate; and new matters akin to them by way of analogy may be imagined and will be perfectly admissible.[e] Even an ingenious paradox or thesis adverse to prevailing opinions may serve the purpose, as likely to obtain countenance from some authority, though as yet we know of none.[f]

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[a] Topic I. xiv. p. 105, b 20-29: *αἱ μὲν γὰρ ἠθικαὶ προτάσεις εἰσίν, αἱ δὲ φυσικαί, αἱ δὲ λογικαί.—ποῖαι δ' ἕκασται τῶν προειρημένων, ὁρισμῷ μὲν οὐκ εὐπετὲς ἀποδοῦναι περὶ αὐτῶν, τῇ δὲ διὰ τῆς ἐπαγωγῆς συνηθείᾳ πειρατέον γνωρίζειν ἑκάστην αὐτῶν, κατὰ τὰ προειρημένα παραδείγματα ἐπισκοποῦντα.*

This illustrates Aristotle's view of the process of Induction and its results; the acquisition of the import of a general term, through comparison of numerous particulars comprehended under it.

The term *logical* does not exactly correspond with Aristotle's *λογικαί*, but on the present occasion no better term presents itself.

[b] Ibid. xi. p. 105, a. 67: *κολάσεως—αἰσθήσεως, δέονται.* Yet he considers the question, Whether we ought rather to obey the laws of the state or the commands of our parents, in case of discrepancy between the two,—as quite fit for debate (xiv. p. 105, b. 22).

[c] Ibid. x. p. 104, a. 5.

[d] Ibid. xi. p. 105, a. 7: *οὐδὲ δὴ ὧν σύνεγγυς ἡ ἀπόδειξις, οὐδ' ὧν λίαν πόῤῥω· τὰ μὲν γὰρ οὐκ ἔχει ἀπορίαν, τὰ δὲ πλείον' ἢ κατὰ γυμναστικήν.* The loose use of the word *ἀπόδειξις* deserves note here: it is the technical term of the Analyt. Post., denoting that application of the syllogism which contrasts with Dialectic altogether.

Aristotle here means only that problems falling within these limits are the best for dialectic discussion; but, in his suggestions later on, he includes problems for discussion involving the utmost generalities of philosophy. For example, he often adverts to dialectic debate on the Platonic Ideas or Forms (Topic. II. vii. p. 113, a. 25; V. vii. p. 137, b. 7; VI. vi. p. 143, b. 24. Compare also I. xi. p. 104, b. 14.)

[e] Topic. I. x. p. 104, a. 11-37.

[f] Ibid. xi. p. 104, b. 24-28: *ἢ περὶ ὧν λόγον ἔχομεν ἐναντίον ταῖς δόξαις—τοῦτο γάρ, εἰ καί τινι μὴ δοκεῖ, δόξειεν ἂν διὰ τὸ λόγον ἔχειν.*

These conditions apply both to problems propounded for debate, and to premisses tendered on either side during the discussion. Both the interrogator and the respondent—the former having to put appropriate questions, and the latter to make appropriate answers—must know and keep in mind these varieties of existing opinion among the multitude as well as among the special dissident authorities above indicated. The dialectician ought to collect and catalogue such *Endoxa*, with the opinions analogous to them, out of written treatises and elsewhere;[a] distributing them under convenient heads, such as those relating to good and evil generally, and to each special class of good, &c. Aristotle, however, admonishes him that he is debating problems not scientifically, but dialectically: having reference not to truth, but to opinion.[b] If the interrogator were proceeding scientifically and didactically, he would make use of all true and ascertained propositions, whether the respondent conceded them or not, as premisses for his syllogism. But in Dialectic he is dependent on the concession of the respondent, and can construct his syllogisms only from premisses that have been conceded to him.[c] Hence he must keep as closely as he can to opinions carrying extrinsic authority, as being those which the respondent will hesitate to disallow.[d]

Moreover, the form of the interrogation admissible in dialectic debate is peculiar. The respondent is not bound to furnish any information in his answer: he is bound only to admit, or to deny, a proposition tendered to him. You must not ask him, What is the genus of man? You must yourself declare the genus, and ask whether he admits it, in one or other of the two following forms—(1) Is animal the genus of man? (2) Is animal the genus of man, or not? to which the response is an admission or a denial.[e]

Dialectic procedure, both of the assailant and of the defen-

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[a] Topic. I. xiv. p. 105, b. 1-18. ἐκλέγειν δὲ χρὴ καὶ ἐκ τῶν γεγραμμένων λόγων.

[b] Ibid. b. 30: πρὸς μὲν οὖν φιλοσοφίαν κατ' ἀλήθειαν περὶ αὐτῶν πραγματευτέον, διαλεκτικῶς δὲ πρὸς δόξαν.

[c] Ibid. VIII. i. p. 155, b. 10: πρὸς ἕτερον γὰρ πᾶν τὸ τοιοῦτον, τῷ δὲ φιλοσόφῳ καὶ ζητοῦντι καθ' ἑαυτὸν οὐδὲν μέλει, ἐὰν ἀληθῆ μὲν ᾖ καὶ γνώριμα δι' ὧν ὁ συλλογισμός, μὴ θῇ δ' αὐτὰ ὁ ἀποκρινόμενος, &c.

[d] Ibid. i. p. 156, b. 20: χρήσιμον δὲ καὶ τὸ ἐπιλέγειν ὅτι σύνηθες καὶ λεγόμενον τὸ τοιοῦτον· ὀκνοῦσι γὰρ κινεῖν τὸ εἰωθός, ἔνστασιν μὴ ἔχοντες.

[e] Ibid. I. iv. p. 101, b. 30. The first of these two forms Aristotle calls a πρότασις, the second he calls a πρόβλημα. But this distinction between these two words is not steadily adhered to: it is differently declared in Topic. I. x., xi. p. 104, as Alexander has remarked in the Scholia, p. 258, b. 4, Brand. Compare also De Interpretat. p. 20, b. 26; and Topic. VIII. ii. p. 158, a. 14: οὐ δοκεῖ δὲ πᾶν τὸ καθόλου διαλεκτικὴ πρότασις εἶναι, οἷον τί ἐστιν ἄνθρωπος, ἢ ποσαχῶς λέγεται τἀγαθόν; ἔστι γὰρ πρότσις διαλεκτικὴ πρὸς ἣν ἔστιν ἀποκρίνασθαι ναὶ ἢ οὔ· πρὸς δὲ τὰς εἰρημένας οὐκ ἔστιν. διὸ οὐ διαλεκτικά ἐστι τὰ τοιαῦτα τῶν ἐρωτημάτων, ἂν μὴ αὐτὸς διορίσας ἢ διελόμενος εἴπῃ.

dant, has to do with propositions and problems; accordingly, Aristotle introduces a general distribution of propositions under four heads. The predicate must either be Genus, or Proprium, or Accident, of its subject. But the Proprium divides itself again into two. It always reciprocates with, or is co-extensive with, its subject; but sometimes it declares the essence of the subject, sometimes it does not. When it declares the essence of the subject, Aristotle calls it the Definition; when it does not declare the essence of the subject, although reciprocating therewith, he reserves for it the title of Proprium. Every proposition, and every problem, the entire material of Dialectic, will declare one of these four—Proprium, Definition, Genus, or Accident.[a] The Differentia, as being attached to the Genus, is ranked along with the Genus.[b]

The above four general heads include all the Predicables, which were distributed by subsequent logicians (from whom Porphyry borrowed) into five heads instead of four—Genus, Species, Differentia, Proprium, Accident; the Differentia being ranked as a separate item in the quintuple distribution, and the Species substituted in place of the Definition. It is under this quadruple classification that Aristotle intends to consider propositions and problems as matters for dialectic procedure: he will give argumentative suggestions applicable to each of the four successively. It might be practicable (he thinks) to range all the four under the single head of Definition; since arguments impugning Genus, Proprium, and Accident, are all of them good also against Definition. But such a simplification would be perplexing and unmanageable in regard to dialectic procedure.[c]

That the quadruple classification is exhaustive, and that every proposition or problem falls under one or other of the four heads, may be shown in two ways. First, by Induction: survey and analyse as many propositions as you will, all without exception will be found to belong to one of the four.[d] Secondly, by the following Deductive proof:—In every proposition the predicate is either co-extensive and reciprocating with the subject, or it is not. If it does reciprocate, it either declares the essence of the subject, or it does not: if the former, it is the Definition; if the latter, it is a Proprium. But, supposing the predicate not

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[a] Topic. I. iv. p. 101, b. 17-36.

[b] Ibid. b. 18: *τὴν διαφορὰν ὡς οὖσαν γενικὴν ὁμοῦ τῷ γένει τακτέον.*

[c] Topic. I. vi. p. 102, b. 27-38. *ἀλλ' οὐ διὰ τοῦτο μίαν ἐπὶ πάντων καθόλου μέθοδον ζητητέον· οὔτε γὰρ ῥᾴδιον εὑρεῖν τοῦτ' ἐστίν, εἴ θ' εὑρεθείη, παντελῶς ἀσαφὴς καὶ δύσχρηστος ἂν εἴη πρὸς τὴν προκειμένην πραγματείαν.*

[d] Ibid. viii. p. 103, b. 3: *μία μὲν πίστις ἡ διὰ τῆς ἐπαγωγῆς· εἰ γάρ τις ἐπισκοποίη ἑκάστην τῶν προτάσεων καὶ τῶν προβλημάτων, φαίνοιτ' ἂν ἢ ἀπὸ τοῦ ὅρου ἢ* &c.

to reciprocate with the subject, it will either declare something contained in the Definition, or it will not. If it does contain a part of the Definition, that part must be either a Genus or a Differentia, since these are the constituents of the Definition. If it does not contain any such part, it must be an Accident.[a] Hence it appears that every proposition must belong to one or other of the four, and that the classification is exhaustive.

Moreover, each of the four Predicables must fall under one or other of the ten Categories or Predicaments. If the predicate be either of Genus or Definition, declaring the essence of the subject, it may fall under any one of the ten Categories; if of Proprium or Accident, not declaring essence, it cannot belong to the first Category (Οὐσία), but must fall under one of the remaining nine.[b]

The notion of Sameness or Identity occurs so often in dialectic debate, that Aristotle discriminates its three distinct senses or grades: (1) *Numero;* (2) *Specie;* (3) *Genere.* Water from the same spring is only *idem specie*, though the resemblance between two cups of water from the same spring is far greater than that between water from different sources. Even *Idem Numero* has different significations: sometimes there are complete synonyms; sometimes an individual is called by its proprium, sometimes by its peculiar temporary accident.[c]

Having thus classified dialectic propositions, Aristotle proceeds to the combination of propositions, or dialectic discourse and argument. This is of two sorts, either Induction or Syllogism; of both which we have already heard in the Analytica. Induction is declared to be plainer, more persuasive, nearer to sensible experience, and more suitable to the many, than Syllogism; while this latter carries greater compulsion and is more irresistible against professed disputants.[d] A particular example is given to illustrate what Induction is. But we remark that though it is always mentioned as an argumentative procedure important and indispensable, yet neither here nor elsewhere does Aristotle go into any discriminative analysis of the condi-

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[a] Topic. I. vii. p. 103, b. 6-19: ἄλλη δὲ πίστις ἡ διὰ συλλογισμοῦ.

It will be observed that Aristotle here resolves Definition into Genus and Differentiæ—ἐπειδὴ ὁ ὁρισμὸς ἐκ γένους καὶ διαφορῶν ἐστίν. Moreover, though he does not recognize Species as a separate head, yet in his definition of Genus he implies Species as known—γένος ἐστὶ τὸ κατὰ πλειόνων καὶ διαφερόντων τῷ εἴδει ἐν τῷ τί ἐστι κατηγορούμενον (p. 102, a. 31).

It thus appears that the quintuple classification is the real and logical one; but the quadruple may perhaps be more suitable for the Topica, with a view to dialectic procedure, since debates turn upon the attack and defence of a Definition.

[b] Ibid. ix. p. 103, b. 20-39.

[c] Ibid. vii. p. 103, a. 6-39.

[d] Ibid. xii. p. 105, a. 10-19: πόσα τῶν λόγων εἴδη τῶν διαλεκτικῶν, &c.

tions under which it is valid, as he does about Syllogism in the Analytica Priora.

What helps are available to give to the dialectician a ready and abundant command of syllogisms? Four distinct helps may be named:[a] (1) He must make a large collection of Propositions; (2) He must study and discriminate the different senses in which the Terms of these propositions are used; (3) He must detect and note Differences; (4) He must investigate Resemblances.

1. About collecting Propositions, Aristotle has already indicated that those wanted are such as declare *Endoxa*, and other modes of thought cognate or analgous to the *Endoxa:*[b] opinions of the many, and opinions of any small sections or individuals carrying authority. All such are to be collected (out of written treatises as well as from personal enquiry); nor are individual philosophers (like Empedokles) to be omitted, since a proposition is likely enough to be conceded when put upon the authority of an illustrious name.[c] If any proposition is currently admitted as true in general or in most cases, it must be tendered with confidence to the respondent as an universal principle; for he will probably grant it, not being at first aware of the exceptions.[d] All propositions must be registered in the most general terms possible, and must then be resolved into their subordinate constituent particulars, as far as the process of subdivision can be carried.[e]

2. The propositions having been got together, they must be examined in order to find out Equivocation or double meaning of terms. There are various ways of going about this task. Sometimes the same predicate is applied to two different subjects, but in different senses; thus, courage and justice are both of them good, but in a different way. Sometimes the same predicate is applied to two different classes of subjects, each admitting of being defined; thus, health is good in itself, and exercise is

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[a] Topic. I. xiii. p. 105, a. 21: *τὰ δ' ὄργανα, δι' ὧν εὐπορήσομεν τῶν συλλογισμῶν, ἐστὶ τέτταρα, ἓν μὲν τὸ προτάσεις λαβεῖν, δεύτερον δὲ ποσαχῶς ἕκαστον λέγεται δύνασθαι διελεῖν, τρίτον τὰς διαφορὰς εὑρεῖν, τέταρτον δὲ ἡ τοῦ ὁμοίου σκέψις.*

The term *ὄργανα*, properly signifying *instruments*, appears here by a strained metaphor. It means simply *helps* or *aids*, as may be seen by comparing Top. VIII. xiv. p. 163, b. 9. Waitz says truly (Prolegg. ad Analyt. Post. p. 294): "unde fit, ut *ὄργανα* dicat quæcunque ad aliquam rem faciendam adiumentum afferant."

[b] Topic. I. xiv. p. 105, b. 4: *ἐκλέγειν μὴ μόνον τὰς οὔσας ἐνδόξους, ἀλλὰ καὶ τὰς ὁμοίας ταύταις.*

[c] Ibid. b. 17: *θείη γὰρ ἄν τις τὸ ὑπό τινος εἰρημένον ἐνδόξου.*

[d] Ibid. b. 10: *ὅσα ἐπὶ πάντων ἢ τῶν πλείστων φαίνεται, ληπτέον ὡς ἀρχὴν καὶ δοκοῦσαν θέσιν· τιθέασι γὰρ οἱ μὴ συνορῶντες ἐπὶ τίνος οὐχ οὕτως.*

[e] Ibid. b. 31-37: *ληπτέον δ' ὅτι μάλιστα καθόλου πάσας τὰς προτάσεις, καὶ τὴν μίαν πολλὰς ποιητέον—διαιρετέον, ἕως ἂν ἐνδέχηται διαιρεῖν,* &c.

good as being among those things that promote health.[a] Sometimes the equivocal meaning of a term is perceived by considering its contrary; if we find that it has two or more distinct contraries, we know at once that it has different meanings. Sometimes, though there are not two distinct contraries, yet the mere conjunction of the same adjective with two substantives shows us at once that it cannot mean the same in both[b] (λευκὴ φωνή—λευκὸν χρῶμα). In one sense, the term may have an assignable contrary, while in another sense it may have no contrary; showing that the two senses are distinct: for example, the pleasure of drinking has for its contrary the pain of thirst; but the pleasure of scientifically contemplating that the diagonal of a square is incommensurable with the side, has no contrary; hence, we see that pleasure is an equivocal term.[c] In one sense, there may be a term intermediate between the two contraries; in another sense, there may be none; or there may be two distinct intermediate terms for the two distinct senses; or there may be several intermediate terms in one of the senses, and only one or none in the other: in each of these ways the equivocation is revealed.[d] We must look also to the contradictory opposite (of a term), which may perhaps have an obvious equivocation of meaning; thus, μὴ βλέπειν means sometimes to be blind, sometimes not to be seeing actually, whence we discover that βλέπειν also has the same equivocation.[e] If a positive term is equivocal, we know that the privative term correlating with it must also be equivocal; thus, τὸ αἰσθάνεσθαι has a double sense, according as we speak with reference to mind or body; and this will be alike true of the correlating privative—τὸ ἀναίσθητον εἶναι.[f] Farther, an equivocal term will have its derivatives equivocal in the same manner; and conversely, if the derivative be equivocal, the radical will be so likewise.[g] The term must also be looked at in reference to the ten Categories: if its meanings fall under more than one Category, we know that it is equivocal.[h] If it comprehends two subjects which are not in the same genus, or in genera not subordinate one to the other, this too will show that it is equivocal.[i] The contrary, also, of the term must be looked at with a view to the same inference.[k]

Again, it will be useful to bring together the same term in two

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[a] Topic. I. xv. p. 106, a. 1-8: τὸ δὲ ποσαχῶς, πραγματευτέον μὴ μόνον ὅσα λέγεται καθ' ἕτερον τρόπον, ἀλλὰ καὶ τοὺς λόγους αὐτῶν πειρατέον ἀποδιδόναι.

[b] Ibid. a. 9-35.

[c] Ibid. a. 36.

[d] Ibid. b. 4.

[e] Ibid. b. 13-20.

[f] Ibid. b. 21-28.

[g] Ibid. b. 28.

[h] Ibid. p. 107, a. 3-17.

[i] Ibid. a. 18.

[k] Ibid. a. 32-35.

different conjunctions, and to compare the definitions of the two. Define both of them, and then deduct what is peculiar to each *definitum:* if the remainder be different, the term will be equivocal; if the remainder be the same, the term will be univocal. Thus, λευκὸν σῶμα will be defined, a body having such and such a colour: λευκὴ φωνή, a voice easily and distinctly heard: deduct σῶμα from the first definition, and φωνὴ from the second, the remainder will be totally disparate; therefore, the term λευκόν is equivocal.[a] Sometimes, also, the ambiguity may be found in definitions themselves, where the same term is used to explain subjects that are not the same; whether such use is admissible, has to be considered.[b] If the term be univocal, two conjunctions of it may always be compared as to greater or less, or in respect of likeness; whenever this cannot be, the term is equivocal.[c] If, again, the term is used as a differentia for two genera quite distinct and independent of each other, it must be equivocal; for genera that are unconnected and not subordinate one to the other, have their differentiæ also disparate.[d] And, conversely, if the term be such that the differentiæ applied to it are disparate, we may know it to be an equivocal term. The like, if the term be used as a species in some of its conjunctions, and as a differentia in others.[e]

3. Aristotle has thus indicated, at considerable length, the points to be looked for when we are examining whether a term is univocal or equivocal. He is more concise when he touches on the last two out of the four helps (ὄργανα) enumerated for supplying syllogisms when needed,—viz. the study of Differences and of Resemblances. In regard to the study of Differences, standing third, while he remarks that, where these are wide and numerous, they are sure without any precept to excite our attention, he advises that we should study the differences of subjects that are nearly allied,—those within the same genus, or comprehended in genera not much removed from one another, such as, the distinction between sensible perception and science. But he goes into no detail.[f]

4. In regard to the study of Resemblances, he inverts the above precept, and directs us to note especially the points of resemblance between subjects of great apparent difference.[g] We must examine what is the quality common to all species of the

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[a] Topic. I. xv. p. 107, a. 36-b. 3.

[b] Ibid. b. 8.

[c] Ibid. b. 13-18: ἔτι εἰ μὴ συμβλητὰ κατὰ τὸ μᾶλλον ἢ ὁμοίως,—τὸ γὰρ συνώνυμον πᾶν συμβλητόν.

[d] Ibid. b. 19-26.

[e] Ibid. b. 27-37.

[f] Ibid. xvi. p. 107, b. 39.

[g] Ibid. xvii. p. 108, a. 12: μάλιστα δ' ἐν τοῖς πολὺ διεστῶσι γυμνάζεσθαι δεῖ· ῥᾷον γὰρ ἐπὶ τῶν λοιπῶν δυνησόμεθα τὰ ὅμοια συνορᾶν.

same genus—man, horse, dog, &c.; for it is in this that they are similar. We may also compare different genera with each other, in respect to the analogies that are to be found in each, *e.g.*, as science is to the cognizable, so is perception to the perceivable; as sight is in the eye, so is intellection in the soul; as γολήνη is in the sea, so is νηνεμία in the air.[a]

Such are the four distinct helps, towards facility of syllogizing, enumerated by Aristotle. It will be observed that the third and fourth (study of Resemblances and Differences) bear more upon matters of fact and less upon words; while the second (τὸ ποσαχῶς), though doubtless also bearing on matters of fact and deriving from thence its main real worth, yet takes its departure from terms and propositions, and proceeds by comparing multiplied varieties of these in regard to diversity of meaning. Upon this ground it is, apparently, that Aristotle has given so much fuller development to the second head than to the third and fourth; for, in the Topica, he is dealing with propositions and counter-propositions—with opinions and counter-opinions, not with science and truth.

He proceeds to indicate the different ways in which these three helps (the second, third, and fourth) further the purpose of the dialectician—respondent as well as assailant. Unless the different meanings of the term be discriminated, the respondent cannot know clearly what he admits or what he denies; he may be thinking of something different from what the assailant intends, and the syllogisms constructed may turn upon a term only, not upon any reality.[b] The respondent will be able to protect himself better against being driven into contradiction, if he can distinguish the various meanings of the same term; for he will thus know whether the syllogisms brought against him touch the real matter which he has admitted.[c] On the other hand, the assailant will have much facility in driving his opponent into contradiction, if he (the assailant) can distinguish the different meanings of the term, while the respondent cannot do so; in those cases at least where the proposition is true in one sense of the term and false in another.[d] This manner of proceeding, however, is hardly consistent with genuine Dialectic. No dialectician ought ever to found his interrogations and his

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[a] Topic. I. xvii. p. 108, a. 7.

[b] Ibid. xviii. p. 108, a. 22.

[c] Ibid. a. 26: χρήσιμον δὲ καὶ πρὸς τὸ μὴ παραλογισθῆναι καὶ πρὸς τὸ παραλογίσασθαι. εἰδότες γὰρ ποσαχῶς λέγεται οὐ μὴ παραλογισθῶμεν, ἀλλ' εἰδήσομεν ἐὰν μὴ πρὸς τὸ αὐτὸ τὸν λόγον ποιῆται ὁ ἐρωτῶν.

[d] Ibid. a. 29: αὐτοί τε ἐρωτῶντες δυνησόμεθα παραλογίσασθαι, ἐὰν μὴ τυγχάνῃ εἰδὼς ὁ ἀποκρινόμενος ποσαχῶς λέγεται· τοῦτο δ' οὐκ ἐπὶ πάντων δυνατόν, ἀλλ' ὅταν ᾖ τῶν πολλαχῶς λεγομένων τὰ μὲν ἀληθῆ, τὰ δὲ ψευδῆ.

arguments upon a mere unanalysed term, unless he can find absolutely nothing else to say in the debate.[a]

The third help (an acquaintance with Differences) will be of much avail on all occasions where we have to syllogize upon Same and Different, and where we wish to ascertain the essence or definition of any thing; for we ascertain this by exclusion of what is foreign thereunto, founded on the appropriate differences in each case.[b]

Lastly, the fourth help (the intelligent survey of Resemblances) serves us in different ways:—(1) Towards the construction of inductive arguments; (2) Towards syllogizing founded upon assumption; (3) Towards the declaration of definitions. As to the inductive argument, it is founded altogether on a repetition of similar particulars, whereby the universal is obtained.[c] As to the syllogizing from an assumption, the knowledge of resemblances is valuable, because we are entitled to assume, as an *Endoxon* or a doctrine conformable to common opinion, that what happens in any one of a string of similar cases will happen also in all the rest. We lay down this as the major proposition of a syllogism; and thus, if we can lay hold of any one similar case, we can draw inference from it to the matter actually in debate.[d] Again, as to the declaration of definitions, when we have once discovered what is the same in all particular cases, we shall have ascertained to what genus the subject before us belongs;[e] for that one of the common predicates which is most of the essence, will be the genus. Even where the two matters compared are more disparate than we can rank in the same genus, the knowledge of resemblances will enable us to discover useful analogies, and thus to obtain a definition at least approximative. Thus, as the point is in a line, so is the unit in numbers; each of them is a *principium;* this, therefore, is a common genus, which will serve as a tolerable definition. Indeed this is the definition of them commonly given by philosophers; who call the unit *principium* of number, and the point

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[a] Topic. I. xviii. p. 108, a. 34: διὸ παντελῶς εὐλαβητέον τοῖς διαλεκτικοῖς τὸ τοιοῦτον, τὸ πρὸς τοὔνομα διαλέγεσθαι, ἀν μή τις ἄλλως ἐξαδυνατῇ περὶ τοῦ προκειμένου διαλέγεσθαι.

[b] Ibid. b. 2.

[c] Ibid. b. 9.

[d] Ibid. b. 12: πρὸς δὲ τοὺς ἐξ ὑποθέσεως συλλογισμούς, διότι ἔνδοξόν ἐστιν, ὥς ποτε ἐφ' ἑνὸς τῶν ὁμοίων ἔχει, οὕτως καὶ ἐπὶ τῶν λοιπῶν· ὥστε πρὸς ὅ τι ἂν αὐτῶν εὐπορῶμεν διαλέγεσθαι, προδιομολογησόμεθα, ὥς ποτε ἐπὶ τούτων ἔχει, οὕτω καὶ ἐπὶ τοῦ προκειμένου ἔχειν. δείξαντες δὲ ἐκεῖνο καὶ το προκείμενον ἐξ ὑποθέσεως δεδειχότες ἐσόμεθα· ὑποθέμενοι γάρ, ὥς ποτε ἐπὶ τούτων ἔχει, οὕτω καὶ ἐπὶ τοῦ προκειμένου ἔχειν, τὴν ἀπόδειξιν πεποιήμεθα. For τὸ ἐξ ὑποθέσεως, compare Topic. III. vi. p. 119, b. 35.

[e] Topic. I. xviii. p. 108, b. 19.

principium of a line, thus putting one and the other into a genus common to both.[a]

II.

The First Book of the Topica, which we have thus gone through, was entitled by some ancient commentators τὰ πρὸ τῶν Τόπων—matters preliminary to the *Loci*. This is quite true, as a description of its contents; for Aristotle in the last words of the book, distinctly announces that he is about to enumerate the *Loci* towards which the four above-mentioned *Organa* will be useful.[b]

Locus (τόπος) is a place in which many arguments pertinent to one and the same dialectical purpose, may be found—*sedes argumentorum*. In each *locus*, the arguments contained therein look at the thesis from the same point of view; and the *locus* implies nothing distinct from the arguments, except this manner of view common to them all. In fact, the metaphor is a convenient one for designating the relation of every Universal generally to its particulars: the Universal is not a new particular, nor any adjunct superimposed upon all its particulars, but simply a *place* in which all known similar particulars may be found grouped together, and in which there is room for an indefinite number of new ones. If we wish to arm the student with a large command of dialectical artifices, we cannot do better than discriminate the various groups of arguments, indicating the point of view common to each group, and the circumstances in which it becomes applicable. By this means, whenever he is called upon to deal with a new debate, he will consider the thesis in reference to each one of these different *loci*, and will be able to apply arguments out of each of them, according as the case may admit.

The four *Helps* (ὄργανα) explained in the last book differ from the *Loci* in being of wider and more undefined bearing: they are directions for preparatory study, rather than for dealing with any particular situation of a given problem; though it must be confessed that, when Aristotle proceeds to specify the manner in which the three last-mentioned helps are useful, he makes considerable approach towards the greater detail and particu-

[a] Topic. I. xviii. p. 108, b. 27: ὥστε τὸ κοινὸν ἐπὶ πάντων γένος ἀποδιδόντες δόξομεν οὐκ ἀλλοτρίως ὁρίζεσθαι. It will be recollected that all the work of Dialectic (as Aristotle tells us often) has reference to δόξα and not to scientific truth. "We shall *seem to define* not in a manner departing from the reality of the subject" is, therefore, an appropriate dialectic artifice.

[b] Ibid. p. 108, b. 32: οἱ δὲ τόποι πρὸς οὓς χρήσιμα τὰ λεχθέντα οἵδε εἰσίν.

larization of the *Loci*. In entering now upon these, he reverts to that quadruple classification of propositions and problems (according to the four Predicables), noted at the beginning of the treatise, in which the predicate is either Definition, Proprium, Genus, or Accident, of the subject. He makes a fourfold distribution of *Loci*, according as they bear upon one or other of these four. In the Second and Third Books, we find those which bear upon propositions predicating Accident; in the Fourth Book, we pass to Genus; in the Fifth, to Proprium; in the Sixth and Seventh, to Definition.

The problem or thesis propounded for debate may have two faults on which it may be impugned: either it may be untrue; or it may be expressed in a way departing from the received phraseology.[a] It will be universal, or particular, or indefinite; and either affirmative or negative; but, in most cases, the respondent propounds for debate an affirmative universal, and not a negative or a particular.[b] Aristotle therefore begins with those *loci* that are useful for refuting an Affirmative Universal; though, in general, the same arguments are available for attack and defence both of the universal and of the particular; for if you can overthrow the particular, you will have overthrown the universal along with it, while if you can defend the universal, this will include the defence of the particular. As the thesis propounded is usually affirmative, the assailant undertakes the negative side or the work of refutation. And this indeed (as Eudemus, the pupil of Aristotle, remarked, after his master[c]) is the principal function and result of dialectic exercise; which refutes much and proves very little, according to the analogy of the Platonic Dialogues of Search.

Aristotle takes the four heads—Accident, Genus, Proprium, and Definition, in the order here enumerated. The thesis of which the predicate is enunciated as Accident, affirms the least, is easiest to defend, and hardest to upset.[d] When we enunciate

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[a] Topic. II. i. p. 109, a. 27: *διορίσασθαι δὲ δεῖ καὶ τὰς ἁμαρτίας τὰς ἐν τοῖς προβλήμασιν, ὅτι εἰσὶ διτταί, ἢ τῷ ψεύδεσθαι, ἢ τῷ παραβαίνειν τὴν κειμένην λέξιν.*

Alexander remarks (Schol. p. 264, b. 23, Br.) that *πρόβλημα* here means, not the interrogation, but *τὸ ὡρισμένον ἤδη καὶ κείμενον—οὗ προΐσταταί τις, ὃν ὁ διαλεκτικὸς ἐλέγχειν ἐπιχειρεῖ.*

[b] Topic. II. i. p. 109, a. 8: *διὰ τὸ μᾶλλον τὰς θέσεις κομίζειν ἐν τῷ ὑπάρχειν ἢ μή, τοὺς δὲ διαλεγομένους ἀνασκευάζειν.*

[c] Alexander ap. Schol. p. 264, a. 27, Br.: *ὅτι δὲ οἰκειότερον τῷ διαλεκτικῷ τὸ ἀνασκευάζειν τοῦ κατασκευάζειν, ἐν τῷ πρώτῳ τῶν ἐπιγραφομένων Εὐδημείων Ἀναλυτικῶν (ἐπιγράφεται δὲ αὐτὸ καὶ Εὐδήμου ὑπὲρ τῶν Ἀναλυτικῶν) οὕτως λέγεται, ὅτι ὁ διαλεκτικὸς ἃ μὲν κατασκευάζει μικρά ἐστι, τὸ δὲ πολὺ τῆς δυνάμεως αὐτοῦ πρὸς τὸ ἀναιρεῖν τι ἐστίν.*

[d] Topic. VII. v. p. 155, a. 27: *ῥᾷστον δὲ πάντων κατασκευάσαι τὸ συμβεβηκός—ἀνασκευάζειν δὲ χαλεπώτατον τὸ συμβεβηκός, ὅτι ἐλάχιστα ἐν αὐτῷ δέδοται· οὐ γὰρ προσσημαίνει ἐν τῷ συμβεβηκότι πῶς ὑπάρχει, ὥστ' ἐπὶ μὲν τῶν ἄλλων διχῶς ἔστιν ἀνελεῖν, ἢ δείξαντα ὅτι οὐχ ὑπάρχει ἢ*

Genus or Proprium, we affirm, not merely that the predicate belongs to the subject (which is all that is affirmed in the case of Accident), but, also something more—that it belongs to the subject in a certain manner and relation. And when we enunciate Definition, we affirm all this and something reaching yet farther—that it declares the whole essence of the *definitum*, and is convertible therewith. Accordingly, the thesis of Definition, affirming as it does so very much, presents the most points of attack and is by far the hardest to defend.[a] Next in point of difficulty, for the respondent, comes the Proprium.

Beginning thus with the thesis enunciating Accident, Aristotle enumerates no less than thirty-seven distinct *loci* or argumentative points of view bearing upon it. Most of them suggest modes of assailing the thesis; but there are also occasionally intimations to the respondent how he may best defend himself. In this numerous list there are indeed some items repetitions of each other, or at least not easily distinguishable.[b] As it would be tedious to enumerate them all, I shall select some of the most marked and illustrative.

1. The respondent has enunciated a certain predicate as belonging in the way of accident, to a given subject. Perhaps it may belong to the subject; yet not as accident, but under some one of the other three Predicables. Perhaps he may have enunciated (either by explicit discrimination, or at least by implication contained in his phraseology) the genus as if it were an accident,—an error not unfrequently committed.[c] Thus, if he has said, To be a colour is an accident of white, he has affirmed explicitly the genus as if it were an accident. And he has affirmed the same by implication, if he has said, White (or whiteness) is coloured. For this is a form of words not proper for the affirmation of a genus respecting its species, in which case the genus itself ought to stand as a literal predicate (White is a colour), and not to be replaced by one of its derivatives (White is coloured). Nor can the proposition be intended to be

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ὅτι οὐχ οὕτως ὑπάρχει, ἐπὶ δὲ τοῦ συμβεβηκότος οὐκ ἔστιν ἀνελεῖν ἀλλ' ἢ δείξαντα ὅτι οὐχ ὑπάρχει.

[a] Topic. VII. v. p. 155, a. 3. *πάντων ῥᾷστον ὅρον ἀνασκευάσαι· πλεῖστα γὰρ ἐν αὐτῷ τὰ δεδομένα πολλῶν εἰρημένων.* a. 23: *τῶν δ' ἄλλων τὸ ἴδιον μάλιστα τοιοῦτον.*

[b] Aristotle himself admits the repetition in some cases, Topic. II. ii. p. 110, a. 12: the fourth *locus* is identical substantially with the second *locus*.

Theophrastus distinguished *παράγγελμα* as the general precept, from *τόπος* or *locus*, as any proposition specially applying the precept to a particular case (Schol. p. 264, b. 38).

[c] Topic. II. ii. p. 109, a. 34: *εἷς μὲν δὴ τόπος τὸ ἐπιβλέπειν εἰ τὸ κατ' ἄλλον τινὰ τρόπον ὑπάρχον ὡς συμβεβηκὸς ἀποδέδωκεν. ἁμαρτάνεται δὲ μάλιστα τοῦτο περὶ τὰ γένη, οἷον εἴ τις τῷ λευκῷ φαίη συμβεβηκέναι χρώματι εἶναι· οὐ γὰρ συμβέβηκε τῷ λευκῷ χρώματι εἶναι, ἀλλὰ γένος αὐτοῦ τὸ χρῶμά ἐστιν.*

taken as affirming either proprium or definition; for in both these the predicate would reciprocate and be co-extensive with the subject, whereas in the present case there are obviously many other subjects of which it may be predicated that they are coloured.[a] In saying, White is coloured, the respondent cannot mean to affirm either genus, proprium, or definition; therefore he must mean to affirm *accident*. The assailant will show that this is erroneous.

2. Suppose the thesis set up by the respondent to be an universal affirmative, or an universal negative. You (the interrogator or assailant) should review the particulars contained under these universals. Review them not at once as separate individuals, but as comprised in subordinate genera and species; beginning from the highest, and descending down to the lowest species which is not farther divisible except into individuals. Thus, if the thesis propounded be, The cognition of opposites is one and the same cognition; you will investigate whether this can be truly predicated respecting all the primary species of *Opposita*: respecting *Relata* and *Correlata*, respecting Contraries, respecting Contradictories, respecting *Habitus* and *Privatio*. If, by going thus far, you obtain no result favourable to your purpose,[b] you must proceed farther, and subdivide until you come to the lowest species:—Is the cognition of just and unjust one and the same? that of double and half? of sight and blindness? of existence and non-existence? If in all, or in any one, of these cases you can show that the universal thesis does not hold, you will have gained your point of refuting it. On the other hand, if, when you have enumerated many particulars, the thesis is found to hold in all, the respondent is entitled to require you to grant it as an universal proposition, unless you can produce a satisfactory counter-example. If you decline this challenge, you will be considered an unreasonable debater.[c]

3. You will find it useful to define both the accident predicated in the thesis, and the subject respecting which it is predicated, or at least one of them: you will see then whether these definitions reveal anything false in the affirmation of the thesis. Thus, if the thesis affirms that it is possible to do injustice to a god, you will define what is meant by doing injustice. The

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[a] We may find cases in which Aristotle has not been careful to maintain the strict logical sense of *συμβεβηκός* or *συμβέβηκεν*, where he applies these terms to Genus or Proprium: *e.g.* Topic. II. iii. p. 110, b. 24; Soph. El. vi. p. 168, b. 1.

[b] Topic. II. ii. p. 109, b. 20: κἂν ἐπὶ τούτων μήπω φανερὸν ᾖ, πάλιν ταῦτα διαιρετέον μέχρι τῶν ἀτόμων, οἷον εἰ τῶν δικαίων καὶ ἀδίκων, &c.

[c] Ibid. b. 25-30. ἐὰν γὰρ μηδέτερον τούτων ποιῇ, ἄτοπος φανεῖται μὴ τιθείς.

definition is—hurting intentionally: you can thus refute the thesis by showing that no injustice to a god can possibly be done; for a god cannot be hurt.[a] Or let the thesis maintained be, The virtuous man is envious. You define envy, and you find that it is—vexation felt by reason of the manifest success of some meritorious man. Upon this definition it is plain that the virtuous man cannot feel envy: he would be worthless, if he did feel it. Perhaps some of the terms employed in your definition may themselves require definition; if so, you will repeat the process of defining until you come to something plain and clear.[b] Such an analysis will often bring out some error at first unperceived in the thesis.

4. It will be advisable, both for assailant and respondent, to discriminate those cases in which the authority of the multitude is conclusive from those in which it is not. Thus, in regard to the meaning of terms and in naming objects, we must speak like the multitude; but, when the question is as to what objects deserve to be denominated so and so, we must not feel bound by the multitude, if there be any special dissentient authority.[c] That which produces good health we must call wholesome, as the multitude do; but, in calling this or that substance wholesome, the physician must be our guide.

5. Aristotle gives more than one suggestion as to those cases in which the terms of the thesis have a double or triple sense, yet in which the thesis is propounded either as an universal affirmative or as an universal negative. If the respondent is himself not aware of the double sense of his thesis, while you (the questioner) are aware of it, you will prove the point which you are seeking to establish against him in one or other of the two senses, if you cannot prove it in both. If he is aware of it in the double sense, he will insist that you have chosen the sense which he did not intend.[d] This mode of procedure will be available to the respondent as well as to you; but it will be harder to him, since his thesis is universal. For, in order to make good an universal thesis, he must obtain your assent to a preliminary assumption or convention, that, if he can prove it in one sense of the terms, it shall be held proved in both; and, unless the proposition be so plausible that you are disposed to grant him this, he will not succeed in the procedure.[e] But you,

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[a] Topic. II. ii. p. 109, b. 34: *οὐ γὰρ ἐνδέχεται βλάπτεσθαι τὸν θεόν.*

[b] Ibid. p. 110, a. 4: *λαμβάνειν δὲ καὶ ἀντὶ τῶν ἐν τοῖς λόγοις ὀνομάτων λόγους καὶ μὴ ἀφίστασθαι ἕως ἂν εἰς γνώριμον ἔλθῃ.*

[c] Ibid. a. 14-22.

[d] Topic. II. iii. p. 110, a. 24.

[e] Ibid. a. 37: *κατασκευάζουσι δὲ προδιομολογητέον ὅτι εἰ ὁτῳοῦν ὑπάρχει, παντὶ ὑπάρχει, ἂν πιθανὸν ᾖ τὸ ἀξίωμα· οὐ γὰρ*

on your side, as refuting, do not require any such preliminary convention or acquiescence; for, if you prove the negative in any single case, you succeed in overthrowing the universal affirmative, while, if you prove the affirmative in any single case, you succeed in overthrowing the universal negative.[a] Such procedure, however, is to be adopted only when you can find no argument applicable to the equivocal thesis in all its separate meanings; this last sort of argument, wherever it can be found, being always better.[b]

In cases where the double meaning is manifest, the two meanings must be distinguished by both parties, and the argument conducted accordingly. Where the term has two or more meanings (not equivocal but) related to each other by analogy, we must deal with each of these meanings distinctly and separately.[c] If our purpose is to refute, we select any one of them in which the proposition is inadmissible, neglecting the others: if our purpose is to prove, we choose any one in which the proposition is true, neglecting the others.[d]

6. Observe that a predicate which belongs to the genus does not necessarily belong to any one of its species, but that any predicate which belongs to one of the species does belong also to the genus; on the other hand, that any predicate which can be denied of the genus may be denied also of all its contained species, but that any predicate which can be denied of some one or some portion of the contained species cannot for that reason be denied of the genus. You may thus prove from one species to the genus, and disprove from the genus to each one species; but not *vice versâ*. Thus, if the respondent grants that there exist cognitions both estimable and worthless, you are warranted in inferring that there exist habits of mind estimable and worthless; for cognition is a species under the genus habit of mind. But if the negative were granted, that there exist no cognitions both estimable and worthless, you could not for that reason infer that there are no habits of mind estimable and worthless. So, if it were granted to you that there are judgments correct and erroneous, you could not for that reason infer

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ἀπόχρη πρὸς τὸ δεῖξαι ὅτι παντὶ ὑπάρχει τὸ ἐφ' ἑνὸς διαλεχθῆναι.

[a] Topic. II. iii. p. 110, a. 32: πλὴν ἀνασκευάζοντι μὲν οὐδὲν δεῖ ἐξ ὁμολογίας διαλέγεσθαι.

[b] Ibid. b. 4.

[c] Topic. II. iii. p. 110, b. 16-p. 111, a. 7. This *locus* is very obscurely stated by Aristotle.

[d] Ibid. p. 110, b. 29-32: ἐὰν βουλώμεθα κατασκευάσαι, τὰ τοιαῦτα προοιστέον ὅσα ἐνδέχεται, καὶ διαιρετέον εἰς ταῦτα μόνον ὅσα καὶ χρήσιμα πρὸς τὸ κατασκευάσαι· ἂν δ' ἀνασκευάσαι, ὅσα μὴ ἐνδέχεται, τὰ δὲ λοιπὰ παραλειπτέον.

Aristotle's precepts indicate the way of managing the debate *with a view to success*.

that there were perceptions of sense correct and erroneous; perceiving by sense being a species under the genus judging. But, if it were granted that there were no judgments correct and erroneous, you might thence infer the like negative about perceptions of sense.[a]

7. Keep in mind also that if there be any subject of which you can affirm the genus, of that same subject you must be able to affirm one or other of the species contained under the genus. Thus, if science be a predicate applicable, grammar, music, or some other of the special sciences must also be applicable: if any man can be called truly a scientific man, he must be a grammarian, a musician, or some other specialist. Accordingly, if the thesis set up by your respondent be, The soul is moved, you must examine whether any one of the known varieties of motion can be truly predicated of the soul, *e.g.*, increase, destruction, generation, &c. If none of these special predicates is applicable to the soul, neither is the generic predicate applicable to it; and you will thus have refuted the thesis. This *locus* may serve as a precept for proof as well as for refutation; for, equally, if the soul be moved in any one species of motion, it is moved, and, if the soul be not moved in any species of motion, it is not moved.[b]

8. Where the thesis itself presents no obvious hold for interrogation, turn over the various definitions that have been proposed of its constituent terms; one or other of these definitions will often afford matter for attack.[c] Look also to the antecedents and consequents of the thesis—what must be assumed and what will follow, if the thesis be granted. If you can disprove the consequent of the proposition, you will have disproved the proposition itself. On the other hand, if the antecedent of the proposition be proved, the proposition itself will be proved also.[d] Examine also whether the proposition be not true at some times, and false at other times. The thesis, What takes nourishment grows necessarily, is true not always, but only for a certain time: animals take nourishment during all their lives, but grow only during a part of their lives. Or, if a man should say that knowing is remembering, this is incorrect; for we

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[a] Topic. II. iv. p. 111, a. 14-32. *νῦν μὲν οὖν ἐκ τοῦ γένους περὶ τὸ εἶδος ἡ ἀπόδειξις· τὸ γὰρ κρίνειν γένος τοῦ αἰσθάνεσθαι· ὁ γὰρ αἰσθανόμενος κρίνει πως—ὁ μὲν οὖν πρότερος τόπος ψευδής ἐστι πρὸς τὸ κατασκευάσαι, ὁ δὲ δεύτερος ἀληθής.—πρὸς δὲ τὸ ἀνασκευάζειν ὁ μὲν πρότερος ἀληθής, ὁ δὲ δεύτερος ψευδής.*

It is here a point deserving attention, that Aristotle ranks *τὸ αἰσθάνεσθαι* as a species under the genus *τὸ κρίνειν*. This is a notable circumstance in the Aristotelian psychology.

[b] Topic. II. iv. p. 111, a. 33-b. 11.

[c] Ibid. b. 12-16.

[d] Ibid. b. 17-23.

remember nothing but events past, whereas we know not only these, but present and future also.[a]

9. It is a sophistical procedure (so Aristotle terms it) to transfer the debate to some point on which we happen to be well provided with arguments, lying apart from the thesis defended. Such transfer, however, may be sometimes necessary. In other cases it is not really but only apparently necessary; in still other cases it is purely gratuitous, neither really nor apparently necessary. It is really necessary, when the respondent, having denied some proposition perfectly relevant to his thesis, stands to his denial and accepts the debate upon it, the proposition being one on which a good stock of arguments may be found against him; also, when you are endeavouring to disprove the thesis by an induction of negative analogies.[b] It is only apparently, and not really, necessary, when the proposition in debate is not perfectly relevant to the thesis, but merely has the semblance of being so. It is neither really nor apparently necessary, when there does not exist even this semblance of relevance, and when some other way is open of bringing bye-confutation to bear on the respondent. You ought to avoid entirely such a procedure in this last class of cases; for it is an abuse of the genuine purpose of Dialectic. If you do resort to it, the respondent should grant your interrogations, but at the same time notify that they are irrelevant to the thesis. Such notification will render his concessions rather troublesome than advantageous for your purpose.[c]

10. You will recollect that every proposition laid down or granted by the respondent carries with it by implication many other propositions; since every affirmation has necessary consequences, more or fewer. Whoever says that Sokrates is a man, has said also that he is an animal, that he is a living creature, biped, capable of acquiring knowledge. If you can disprove any of these necessary consequences, you will have disproved the thesis itself. You must take care, however, that you fix upon some one of the consequences which is really easier, and not more difficult, to refute than the thesis itself.[d]

11. Perhaps the thesis set up by the respondent may be of

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[a] Topic. II. iv. p. 111, b. 24-31.

[b] Ibid. v. p. 111, b. 32-p. 112, a. 2: ἔτι ὁ σοφιστικὸς τρόπος, τὸ ἄγειν εἰς τοιοῦτον πρὸς ὃ εὐπορήσομεν ἐπιχειρημάτων, &c.

[c] Ibid. p. 112, a. 2-15. δεῖ δ' εὐλαβεῖσθαι τὸν ἔσχατον τῶν ῥηθέντων τρόπων· παντελῶς γὰρ ἀπηρτημένος καὶ ἀλλότριος ἔοικεν εἶναι τῆς διαλεκτικῆς.

The epithet σοφιστικὸς τρόπος is probably intended by Aristotle to apply only to this last class of cases.

This paragraph is very obscure, and is not much elucidated by the long Scholion of Alexander (pp. 267-268, Br.).

[d] Topic. II. v. p. 112, a. 16-23.

such a nature that one or other of two contrary predicates must belong to the subject; *e.g.*, either health or sickness. In that case, if you are provided with arguments bearing on one of the two contraries, the same arguments will also serve indirectly for proof, or for disproof, of the other. Thus, if you show that one of the two contraries does belong to the subject, the same arguments prove that the other does not; *vice versâ*, if you show that one of them does not belong, it follows that the other does.[a]

12. You may find it advantageous, in attacking the thesis, to construe the terms in their strict etymological sense, rather than in the sense which common usage gives them.[b]

13. The predicate may belong to its subject either necessarily, or usually, or by pure hazard. You will take notice in which of these three ways the respondent affirms it, and whether that which he chooses is conformable to the fact. If he affirms it as necessary, when it is really either usual or casual, the thesis will be open to your attacks. If he affirms it without clearly distinguishing in which of the three senses he intends it to be understood, you are at liberty to construe it in that one of the three senses which best suits your argument.[c]

14. Perhaps the thesis may have predicate and subject exactly synonymous, so that the same thing will be affirmed as an accident of itself. On this ground it will be assailable.[d]

15. Sometimes the thesis will have more than one proposition contrary to it. If so, you may employ in arguing against it that one among its various contraries which is most convenient for your purpose.[e] Perhaps the predicate (accidental) of the thesis may have some contrary: if it has, you will examine whether that contrary belongs to the subject of the thesis: and, should such be the case, you may use it as an argument to refute the thesis itself.[f] Or the predicate of the thesis may be such that, if the thesis be granted, it will follow as a necessary consequence that contrary predicates must belong to the same

[a] Topic. II. vi. p. 112, a. 25-31. *δῆλον οὖν ὅτι πρὸς ἄμφω χρήσιμος ὁ τόπος.*

[b] Ibid. a. 32-38: *ἔτι τὸ ἐπιχειρεῖν μεταφέροντα τοὔνομα ἐπὶ τὸν γόλον, ὡς μάλιστα προσῆκον ἐκλαμβάνειν ἢ ὡς κεῖται τοὔνομα.*

The illustrative examples which follow prove that *λόγον* here means the etymological origin, and not the definition, which is its more usual meaning.

[c] Ibid. b. 1-20. This *locus* seems unsuitable in that part of the Topica where Aristotle professes to deal with theses *τοῦ συμβεβηκότος*, or theses affirming or denying *accidental* predicates. It is one of the suppositions here that the respondent affirms the predicate as *necessary*.

[d] Ibid. b. 21-26.

[e] Ibid. vii. p. 112, b. 28-p. 113, a. 19. *δῆλον οὖν ἐκ τῶν εἰρημένων ὅτι τῷ αὐτῷ πλείονα ἐναντία συμβαίνει γίνεσθαι.—λαμβάνειν οὖν τῶν ἐναντίων ὁπότερον ἂν ᾖ πρὸς τὴν θέσιν χρήσιμον.*

[f] Ibid. viii. p. 113, a. 20-23.

subject. Thus, if the thesis be that the Platonic Ideas exist *in us*, it follows necessarily that they are both in motion and at rest; both perceivable by sense, and cogitable by intellect.[a] As these two predicates (those constituting the first pair as well as the second pair) are contrary to each other, and cannot both belong to the same subject, this may be used as an argument against the thesis from which such consequence follows.

16. We know that whatever is the recipient of one of two contraries, is capable also of becoming recipient of the other. If, therefore, the predicate of the thesis has any contrary, you will examine whether the subject of the thesis is capable of receiving such contrary. If not, you have an argument against the thesis. Let the thesis be, The appetitive principle is ignorant. If this be true, that principle must be capable of knowledge.[b] Since this last is not generally admitted, you have an argument against the thesis.

17. We recognize four varieties of *Opposita;* (1) Contradictory; (2) Contrary; (3) *Habitus* and *Privatio;* (4) *Relata.* You will consider how the relation in each of these four varieties bears upon the thesis in debate.

In regard to Contradictories, you are entitled, converting the terms of the thesis, to deny the predicate of the converted proposition respecting the negation of the subject.. Thus, if man is an animal, you are entitled to infer, What is not an animal is not a man. You will prove this to be an universal rule by Induction; that is, by citing a multitude of particular cases in which it is indisputably true, without possibility of finding any one case in which it does not apply. If you can prove or disprove the converted obverse of the thesis—What is not an animal is not a man—you will have proved or disproved, the thesis itself, Man is an animal. This *locus* is available both for assailant and respondent.[c]

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[a] Topic. II. viii. p. 113, a. 24-32: *ἢ εἴ τι τοιοῦτον εἴρηται κατά τινος, οὗ ὄντος ἀνάλκη τὰ ἐναντία ὑπάρχειν. οἷον εἰ τὰς ἰδέας ἐν ἡμῖν ἔφησεν εἶναι· κινεῖσθαί τε γὰρ καὶ ἠρεμεῖν αὐτὰς συμβήσεται, ἔτι δὲ αἰσθητὰς καὶ νοητὰς εἶναι.* Aristotle then proceeds to state how this consequence arises. Those who affirm the Platonic Ideas, assign to them as fundamental characteristic, that they are at rest and cogitable. But, if the Ideas exist *in us*, they must be moveable, because *we* are moved; they must also be perceivable by sense, because it is through vision only that we discriminate and know differences of form. Waitz observes (in regard to the last pair, *καὶ αἰσθηταί*): "Nam singulæ ideæ certam quandam rerum speciem et formam exprimunt: species autem et forma oculis cernitur." I do not clearly see, however, that this is a consequence of affirming Ideas to be *ἐν ἡμῖν*; it is equally true if they are *not ἐν ἡμῖν*.

[b] Topic. II. vii. p. 113, a. 33-b. 10.

[c] Ibid. viii. p. 113, b. 15-26: *ἐπεὶ δ' αἱ ἀντιθέσεις τέσσαρες, σκοπεῖν ἐκ μὲν τῶν ἀντιφάσεων ἀνάπαλιν ἐκ τῆς ἀκολουθήσεως καὶ ἀναιροῦντι καὶ κατασκευάζοντι· λαμβάνειν δ' ἐξ ἐπαγωγῆς, οἷον εἰ ὁ*

In regard to Contraries, you will study the thesis, to see whether the contrary of the predicate can be truly affirmed respecting the contrary of the subject, or whether the contrary of the subject can be truly affirmed respecting the contrary of the predicate. This last alternative occurs sometimes, but not often; in general the first alternative is found to be true. You must make good your point here also by Induction, or by repetition of particular examples. This *locus* will serve either for the purpose of refutation or for that of defence, according to circumstances. If neither of the two alternatives above-mentioned is found correct, this is an argument against the thesis.[a]

In regard to *Habitus* and *Privatio*, the rule is the same as about Contraries; only that the first of the two above alternatives always holds, and the second never occurs.[b] If sensible perception can be predicated of vision, insensibility also can be predicated of blindness; otherwise, the thesis fails.

In regard to *Relata*, the inference holds from the correlate of the subject to the correlate of the predicate. If knowledge is belief, that which is known is believed; if vision is sensible perception, that which is visible is sensibly perceivable. Some say that there are cases in which the above does not hold; *e.g.* That which is sensibly perceivable is knowable; yet sensible perception is not knowledge. But this objection is not valid; for many persons dispute the first of the two propositions. This *locus* will be equally available for the purpose of refutation—thus, you may argue—That which is sensibly perceivable is not knowable, because sensible perception is not knowledge.[c]

18. You will look at the terms of the proposition, also, in regard to their Derivatives, Inflections, &c., and to matters associated with them in the way of production, preservation, &c. This *locus* serves both for proof and for refutation. What is affirmable of the subject, is affirmable also of its derivatives: what is not affirmable of the derivatives, is not affirmable of the subject itself.[d]

ἄνθρωπος ζῷον, τὸ μὴ ζῷον οὐκ ἄνθρωπος. ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων—ἐπὶ πάντων οὖν τὸ τοιοῦτον ἀξιωτέον.

Aristotle's declaration, that this great logical rule can only be proved by Induction, deserves notice. I have remarked the same thing about his rules for the conversion of propositions, in the beginning of the Analytica Priora. See above, p. 145, seq.

[a] Topic. II. viii. p. 113, b. 27-p. 114, a. 6. *λαμβάνειν δὲ καὶ τὰ τοιαῦτα ἐξ ἐπαγωγῆς, ἐφ' ὅσον χρήσιμον.—σπάνιον δὲ τὸ ἀνάπαλιν ἐπὶ τῶν ἐναντίων συμβαίνει, ἀλλὰ τοῖς πλείστοις ἐπὶ ταὐτὰ ἡ ἀκολούθησις· εἰ οὖν μητ' ἐπὶ ταὐτὰ τῷ ἐναντίῳ τὸ ἐναντίον ἀκολουθεῖ μήτε ἀνάπαλιν, δῆλον ὅτι οὐδὲ τῶν ῥηθέντων ἀκολουθεῖ τὸ ἕτερον τῷ ἑτέρῳ.*

[b] Ibid. p. 114, a. 7-12.

[c] Ibid. a. 13-25.

[d] Ibid. ix. p. 114, a. 26-b. 5. *σύστοιχα, πτώσεις, τὰ ποιητικὰ καὶ φυλακτικά—δῆλον οὖν ὅτι ἑνὸς ὁποιουοῦν δειχθέντος τῶν κατὰ τὴν αὐτὴν συστοιχίαν ἀγαθοῦ ἢ ἐπαινετοῦ, καὶ τὰ λοιπὰ πάντα δεδειγμένα*

19. Arguments may often be drawn, both for proof and for refutation, from matters Similar or Analogous to the subject or predicate of the thesis. Thus, if one and the same cognition comprehends many things, one and the same opinion will also comprehend many things. If to possess vision is to see, then also to possess audition is to hear. If to possess audition is *not* to hear, then neither is to possess vision to see. The argument may be urged whether the resemblance is real or only generally supposed. Sometimes, however, the inference will not hold from one to many. Thus, if to know is to cogitate, then to know many things should be to cogitate many things. But this last is impossible. A man may know many things, but he cannot cogitate many things; therefore, to know is *not* to cogitate.[a]

20. There are various *loci* for argument, arising from degrees of Comparison—more, less, equally. One is the argument from concomitant variations, which is available both for proof and for disproof. If to do injustice is evil, to do more injustice is more evil. If an increase in degree of the subject implies an increase in degree of the predicate, then the predicate is truly affirmed; if not, not. This may be shown by Induction, or repetition of particular instances.[b] Again, suppose the same predicate to be affirmable of two distinct subjects A and B, but to be more probably affirmable of A than of B. Then, if you can show that it does *not* belong to A, you may argue (*à fortiori*) that it does *not* belong to B; or, if you can show that it belongs to B, you may argue (*à fortiori*) that it belongs also to A. Or, if two distinct predicates be affirmable respecting the same subject but with unequal degrees of probability, then, if you can disprove the more probable of the two, you may argue from thence in disproof of the less probable; and, if you can prove the less probable, you may argue from thence in proof of the more probable. Or, if two distinct predicates be affirmable respecting two distinct subjects but with unequal degrees of probability, then, if you can disprove the more probable you may argue from thence against the less probable; and, if you can prove the less probable, you are furnished with an argument

γίνεται.—b. 23: *ὧν μὲν γὰρ τὰ ποιητικὰ ἀγαθά, καὶ αὐτὰ τῶν ἀγαθῶν, ὧν δὲ τὰ φθαρτικὰ ἀγαθά, αὐτὰ τῶν κακῶν.*

[a] Topic. II. x. p. 114, b. 25-36: *πάλιν ἐπὶ τῶν ὁμοίων, εἰ ὁμοίως ἔχει,—καὶ ἐπὶ τῶν ὄντων καὶ τῶν δοκούντων· χρήσιμος δ' ὁ τόπος πρὸς ἄμφω.—σκοπεῖν δὲ καὶ εἰ ἐφ' ἑνὸς καὶ εἰ ἐπὶ πολλῶν ὁμοίως ἔχει· ε'νιαχοῦ γὰρ διαφωνεῖ.*

[b] Ibid. b. 37-p. 115, a. 5: *εἰσὶ δὲ τοῦ μᾶλλον τόποι τέσσαρες, εἷς μὲν εἰ ἀκολουθεῖ τὸ μᾶλλον τῷ μᾶλλον,—χρήσιμος δὲ πρὸς ἄμφω ὁ τόπος· εἰ μὲν γὰρ ἀκολουθεῖ τῇ τοῦ ὑποκειμένου ἐπιδόσει ἡ τοῦ συμβεβηκότος ἐπίδοσις, καθάπερ εἴρηται, δῆλον ὅτι συμβέβηκεν, εἰ δὲ μὴ ἀκολουθεῖ, οὐ συμβέβηκεν· τοῦτο δ' ἐπαγωγῇ ληπτέον.*

in proof of the more probable.[a] If the degrees of probability, instead of being unequal, are equal or alike, you may still, in the cases mentioned, argue in like manner from proof or disproof of the one to proof or disproof of the other.[b]

21. Another *locus* for argument is, that *ex adjuncto*. If the subject, prior to adjunction of the attribute, be not white or good, and if adjunction of the attribute makes it white or good, then, you may argue that the adjunct must itself be white or good. And you might argue in like manner, if the subject prior to adjunction were to a certain extent white or good, but became more white or more good after such adjunction.[c] But this *locus* will not be found available for the negative inference or refutation. You cannot argue, because the adjunction does not make the subject white or good, that therefore the adjunct itself is not white or not good.[d]

22. If the predicate be affirmable of the subject in greater or less degree, it must be affirmable of the subject simply and absolutely. Unless the subject be one that can be called white or good, you can never call it more white or more good. This *locus* again, however, cannot be employed in the negative, for the purpose of refutation. Because the predicate cannot be affirmed of the subject in greater or less degree, you are not warranted in inferring that it cannot be affirmed of the subject at all. Sokrates cannot be called in greater or less degree a man; but you cannot thence infer that he is not called a man simply.[e] If the predicate can be denied of the subject simply and absolutely, it can be denied thereof with every sort of qualification: if it can be affirmed of the subject with qualification, it can also be affirmed thereof simply and absolutely, as a possible predicate.[f] This, however, when it comes to be explained, means only that it can be affirmed of some among the particulars called by the name of the subject. Aristotle recognizes that the same predicate may often be affirmed of the subject *secundum quid*, and denied of the subject simply and absolutely. In some places (as among the Triballi), it is honourable to sacrifice your father; simply and absolutely, it is not honourable. To one who is sick, it is advantageous to undergo medical treatment; speaking simply and absolutely (*i.e.*, to persons generally in the ordinary state of health), it is not advantageous. It is only when you can truly affirm the pro-

[a] Topic. II. x. p. 115, a. 5-14.

[b] Ibid. a. 15-24: ἐκ τοῦ ὁμοίως ὑπάρχειν ἢ δοκεῖν ὑπάρχειν, &c.

[c] Ibid. xi. p. 115, a. 26-33.

[d] Ibid. a. 32-b. 2.

[e] Ibid. b. 3-10.

[f] Ibid. b. 11-35. εἰ γὰρ κατά τι ἐνδέχεται, καὶ ἁπλῶς ἐνδέχεται.

position, without adding any qualifying words, that the proposition is true simply and absolutely.[a]

III.

Such are the chief among the thirty-seven *Loci* which Aristotle indicates for debating dialectically those theses in which the predication is only of Accident—not of Genus, or Proprium, or Definition. He proceeds (in the Third Book of the Topica) to deal separately with one special branch of such theses, respecting *Expetenda* and *Fugienda:* where the question put is, Of two or more distinct subjects, which is the more desirable or the better? The cases supposed are those in which the difference of value between the two subjects compared is not conspicuous and unmistakeable, but where there is a tolerably near approximation of value between them, so as to warrant doubt and debate.[b]

We must presume that questions of this class occurred very frequently among the dialectical debates of Aristotle's contemporaries; so that he thinks it necessary to give advice apart for conducting them in the best manner.

1. Of two good subjects compared, that is better and more desirable which is the more lasting; or which is preferred by the wise and good man; or by the professional artist in his own craft; or by right law; or by the multitude, all or most of them. That is absolutely or simply better and more desirable, which is declared to be such by the better cognition; that is better to any given individual, which is declared to be better by his own cognition.[c]

2. That is more desirable which is included in the genus good, than what is not so included; that which is desirable on its own account and *per se,* is better than what is desirable only on account of something else and *per accidens;* the cause of what is good in itself is more desirable than the cause of what is good by accident.[d]

3. What is good absolutely and simply (*i.e.*, to all and at all times) is better than what is good only for a special occasion or individual; thus, to be in good health is better than being cut for the stone. What is good by nature is better than what is good not by nature; *e.g.*, justice (good by nature), than the

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[a] Topic. II. xi. p. 115, b. 33: ὥστε ὃ ἂν μηδενὸς προστιθεμένου δοκῇ εἶναι καλὸν ἢ αἰσχρὸν ἢ ἄλλο τι τῶν τοιούτων, ἁπλῶς ῥηθήσεται.

[b] Ibid. III. i. p. 116, a. 1-12: Πότερον δ' αἱρετώτερον ἢ βέλτιον δυεῖν ἢ πλειόνων, ἐκ τῶνδε σκεπτέον. &c.

[c] Topic. III. i. p. 116, a. 13-22.

[d] Ibid. a. 23-b. 7.

just individual, whose character must have been acquired.[a] What is good, or what is peculiarly appurtenant, to the more elevated of two subjects is better than what is good or peculiar to the less elevated. Good, having its place in the better, prior, and more exalted elements of any subject, is more desirable than good belonging to the derivative, secondary, and less exalted; thus, health, which has its seat in proper admixture and proportion of the fundamental constituents of the body (wet, dry, hot, cold), is better than strength or beauty—strength residing in the bones and muscles, beauty in proper symmetry of the limbs.[b] Next, an end is superior to that which is means thereunto; and, in comparing two distinct means, that which is nearer to the end is the better. That which tends to secure the great end of life is superior to that which tends towards any other end; means to happiness is better than means to intelligence; also the possible end, to the impossible. Comparing one subject as means with another subject as end, we must examine whether the second end is more superior to the end produced by the first subject, than the end produced by the first subject is superior to the means or first subject itself. For example, in the two ends, happiness and health, if happiness as an end surpasses health as an end in greater proportion than health surpasses the means of health, then the means producing happiness is better than the end health.[c]

Again, that which is more beautiful, honourable, and praiseworthy *per se*, is better than what possesses these same attributes in equal degree but only on account of some other consequence. Thus, friendship is superior to wealth, justice to strength; for no one values wealth except for its consequences, whereas we esteem friendship *per se*, even though no consequences ensue from it.[d]

Where the two subjects compared are in themselves so nearly equal that the difference of merit can hardly be discerned, we must look to the antecedents or consequents of each, especially to the consequents; and, according as these exhibit most of

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[a] Topic. III. i. p. 116, b. 7-12.

[b] Ibid. b. 12-22: *καὶ τὸ ἐν βελτίοσιν ἢ προτέροις ἢ τιμιωτέροις βέλτιον, οἷον ὑγίεια ἰσχύος καὶ κάλλους. ἡ μὲν γὰρ ἐν ὑγροῖς καὶ ξηροῖς καὶ θερμοῖς καὶ ψυχροῖς, ἁπλῶς δ' εἰπεῖν ἐξ ὧν πρώτων συνέστηκε τὸ ζῷον, τὰ δ' ἐν τοῖς ὑστέροις. ἡ μὲν γὰρ ἰσχὺς ἐν τοῖς νεύροις καὶ ὀστοῖς, τὸ δὲ κάλλος τῶν μελῶν τις συμμετρία δοκεῖ εἶναι.*

The reason given in this *locus* for superior estimation is a very curious one: the fundamental or primary constituents rank higher than compounds or derivatives formed by them or out of them. Also, the definition of beauty deserves attention: the Greeks considered beauty to reside more in proportions of form of the body than in features of the face.

[c] Ibid. b. 22-36.

[d] Ibid. b. 33-p. 117, a. 4.

good or least of evil, we must regulate our estimation of the two subjects to which they respectively belong.[a] The larger lot of good things is preferable to the smaller. Sometimes what is not in itself good, if cast into the same lot with other things very good, is preferable to another thing that is in itself good. Thus, what is not *per se* good, if it goes along with happiness, is preferable even to justice and courage. The same things, when taken along with pleasure or with the absence of pain, are preferable to themselves without pleasure or along with pain.[b] Everything is better, at the season when it tells for most, than itself at any other season; thus, intelligence and absence of pain are to be ranked as of more value in old age than in youth; but courage and temperance are more indispensably required, and therefore more to be esteemed, in youth than in old age. What is useful on all or most occasions is more to be esteemed than what is useful only now and then; *e.g.*, justice and moderation, as compared with courage: also that which being possessed by every one, the other would not be required; *e.g.*, justice is better than courage, for, if every one were just, courage would not be required.[c]

Among two subjects the more desirable is that of which the generation or acquirement is more desirable; that of which the destruction or the loss is more to be deplored; that which is nearer or more like to the *Summum Bonum* or to that which is better than itself (unless indeed the resemblance be upon the ridiculous side, in the nature of a caricature, as the ape is to man[d]); that which is the more conspicuous; the more difficult to attain; the more special and peculiar; the more entirely removed from all bad accompaniments; that which we can best share with friends; that which we wish to do to our friends, rather than to ordinary strangers (*e.g.*, doing justice or conferring benefit, than seeming to do so; for towards our friends we prefer doing this in reality, while towards strangers we prefer seeming to do so[e]); that which we cannot obtain from others, as compared with that which can be hired; that which is unconditionally desirable, as compared with that which is desirable only when we have something else along with it; that of which the absence

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[a] Topic. III. i.p. 117, a. 5-15.

[b] Ibid. a. 16-25.

[c] Ibid. a. 26-b. 2.

[d] Ibid. ii. p. 117, b. 2-17. σκοπεῖν δὲ καὶ εἰ ἐπὶ τὰ γελοιότερα εἴη ὅμοιον, καθάπερ ὁ πίθηκος τῷ ἀνθρώπῳ, τοῦ ἵππου μὴ ὄντος ὁμοίου· οὐ γὰρ κάλλιον ὁ πίθηκος, ὁμοιότερον δὲ τῷ ἀνθρώπῳ.

[e] Ibid. b. 20-p. 118, a. 5. ἃ πρὸς τὸν φίλον πρᾶξαι μᾶλλον βουλόμεθα ἢ ἃ πρὸς τὸν τυχόντα, ταῦτα αἱρετώτερα, οἷον τὸ δικαιοπραγεῖν καὶ εὖ ποιεῖν μᾶλλον ἢ τὸ δοκεῖν· τοὺς γὰρ φίλους εὖ ποιεῖν βουλόμεθα μᾶλλον ἢ δοκεῖν, τοὺς δὲ τυχόντας ἀνάπαλιν.

is a ground of just reproach against us and ought to make us ashamed;[a] that which does good to the proprietor, or to the best parts of the proprietor (to his mind rather than his body);[b] that which is eligible on its own ground, rather than from opinion of others; that which is eligible on both these accounts jointly, than either.[c] Acquisitions of supererogation are better than necessaries, and are sometimes more eligible: thus, to live well is better than life simply; philosophizing is better than money-making; but sometimes necessaries are more eligible, as, *e.g.*, to a starving man. Speaking generally, necessaries are more eligible; but the others are better.[d]

Among many other *loci*, applicable to this same question of comparative excellence between two different subjects, one more will suffice here. You must distinguish the various ends in relation to which any given subject is declared to be eligible: the advantageous, the beautiful, the agreeable. That which conduces to all the three is more eligible than that which conduces to one or two of them only. If there be two subjects, both of them conducive to the same end among the three, you must examine which of them conduces to it most. Again, that which conduces to the better end (*e.g.*, to virtue rather than to pleasure) is the more eligible. The like comparison may be applied to the *Fugienda* as well as to the *Expetenda*. That is most to be avoided which shuts us out most from the desirable acquisitions: *e.g.*, sickness is more to be avoided than ungraceful form; for sickness shuts us out more completely both from virtue and from pleasure.[e]

The same *loci* which are available for the question of comparison will also be available in the question of positive eligibility or positive ineligibility.[f] Further, it holds for all cases of the kind that you should enunciate the argument in the most general terms that each case admits: in this way it will cover a greater number of particulars. Slight mutations of language will often here strengthen your case: that which is (good) by nature is more (good) than that which is (good) not by nature; that which

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[a] Topic. III. ii. p. 118, a. 16-26.

[b] Ibid. iii. p. 118, a. 29.

[c] Ibid. b. 20. The definition of this last condition is—that we should not care to possess the thing if no one knew that we possessed it: ὅρος δὲ τοῦ πρὸς δόξαν, τὸ μηδενὸς συνειδότος μὴ ἂν σπουδάσαι ὑπάρχειν.

[d] Ibid. p. 118, a. 6-14. οὐ γὰρ εἰ βελτίω, ἀναγκαῖον καὶ αἱρετώτερα· τὸ γοῦν φιλοσοφεῖν βέλτιον τοῦ χρηματίζεσθαι, ἀλλ' οὐχ αἱρετώτερον τῷ ἐνδεεῖ τῶν ἀναγκαίων. τὸ δ' ἐκ περιουσίας ἐστίν, ὅταν ὑπαρχόντων τῶν ἀναγκαίων ἄλλα τινὰ προσκατασκευάζηταί τις τῶν καλῶν. σχεδὸν δ' ἴσως αἱρετώτερον τὸ ἀναγκαῖόν ἐστι, βέλτιον δὲ τὸ ἐκ περιουσίας.

[e] Ibid. iii. p. 118, b. 27-36.

[f] Ibid. iv. p. 119, a. 1.

makes the subject to which it is better than that which does not make the subject good.[a]

The *loci* just enumerated are Universal, and applicable to the debate of theses propounded in universal terms; but they will also be applicable, if the thesis propounded be a Particular proposition.

If you prove the universal affirmative, you will at the same time prove the particular; if you prove the universal negative, you prove the particular negative also. The universal *loci* from Opposites, from Conjugates, from Inflections, will be alike applicable to particular propositions. Thus, if we look at the universal *locus* from Contraries, If all pleasure is good, then all pain is evil,—this will apply also to the particular, If some pleasure is good, then some pain is evil: in the particular as in the universal form the proposition is alike an *Endox* or conformable to common received opinion. The like may be said about the *loci* from *Habitus* and *Privatio;* also about those from Generation and Destruction;[b] again, from More, Less, and Equally—this last, however, with some restriction, for the *locus* from Less will serve only for proving an affirmative. Thus, if some capacity is a less good than science, while yet some capacity is a good, then, *à fortiori*, some science is a good. But, if you take the same *locus* in the negative and say that no capacity is a good, you will not be warranted in saying, for that reason, that no science is a good.[c] You may apply this same *locus* from Less to compare, not merely two subjects in different genera, but also two subjects of different degrees under the same genus. Thus, let the thesis be, Some science or cognition is a good. You will disprove this thesis, if you can show that prudence (φρόνησις) is not a good; for, if prudence, which in common opinion is most confidently held to be a good, be really not so, you may argue that, *à fortiori*, no other science can be so. Again, let the thesis be propounded with the assumption that, if it can be proved true or false in any one case, it shall be accepted as true or false in all universally (for example, that, if the human soul is immortal, all other souls are immortal also; or if not that, then none of the others): evidently, the propounder of such a thesis extends the particular into an universal.

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[a] Topic. III. v. p. 119, a. 12: *ληπτέον δ' ὅτι μάλιστα καθόλου τοὺς τόπους περὶ τοῦ μᾶλλον καὶ τοῦ μείζονος· ληφθέντες γὰρ οὕτως πρὸς πλείω χρήσιμοι ἂν εἴησαν.*

[b] Ibid. vi. p. 119, a. 32-b. 16. *ὁμοίως γὰρ ἔνδοξον τὸ ἀξιῶσαι, εἰ πᾶσα ἡδονὴ ἀγαθόν, καὶ λύπην πᾶσαν εἶναι κακόν, τῷ εἴ τις ἡδονὴ ἀγαθόν, καὶ λύπην εἶναί τινα κακόν—ἐν ἅπασι γὰρ ὁμοίως τὸ ἔνδοξον.*

[c] Ibid. b. 17-30. *δῆλον οὖν ὅτι κατασκευάζειν μόνον ἐκ τοῦ ἧττον ἔστιν.*

If he propounds his thesis affirmatively, you must try to prove the negative in some particular case; for this, under the conditions supposed, will be equivalent to proving an universal negative. If, on the other hand, he puts his thesis negatively, you will try to prove some particular affirmative; which (always under the given conditions) will carry the universal affirmative also.[a]

Suppose the respondent to propound his thesis indefinitely, not carrying the indication either of universal or particular; *e.g.*, Pleasure is good. This can be proved by showing either that all pleasure is good, or that some pleasure is good; while it can be refuted only through the universal negative—by showing that no pleasure is good.[b] But, if the thesis be divested of its indefinite character and propounded either as universal or as particular, there will then be two distinct ways of refuting it. If it be farther specialized—*e.g.*, One pleasure only is good—there will be three ways of refuting: you may show either that all pleasures are good; or that no pleasure is good; or that more pleasures than one are good. If the proposition be specialized farther still—*e.g.*, Prudence alone among all the virtues is science,—there are four lines of argument open for refuting it: you may prove either that all virtue is science; or that no virtue is science; or that some other virtue (such as justice) is science; or that prudence is not science.[c]

In dealing with a particular proposition as thesis, still other *loci* already indicated for dealing with universal propositions will be available. You will run through the particulars comprised in the subject, distributed into genera and species. When you have produced a number of particulars successively to establish the universal, affirmative or negative, you are warranted in calling on the respondent either to admit the universal, or to produce on his side some adverse particular.[d] You will also (as was before recommended) distribute the predicate of the thesis into the various species which it comprehends. If no one of these species be truly affirmable of the subject, then neither can the genus be truly affirmable; so that you will have refuted the thesis, supposing it to be affirmative. If, on the contrary, any one of the species be truly affirmable of the subject, then the genus will also be truly affirmable; so that you will have refuted

[a] Topic. III. vi. p. 119, b. 31-p. 120, a. 5.

[b] Ibid. p. 120, a. 6-20: *ἀδιορίστου μὲν οὖν ὄντος τοῦ προβλήματος μοναχῶς ἀνασκευάζειν ἐνδέχεται—ἀναιρεῖν μὲν μοναχῶς ἐνδέχεται, κατασκευάζειν δὲ διχῶς.* &c.

[c] Ibid. a. 15-31.

[d] Ibid. a. 32-38: *ἄν τε γὰρ παντὶ φαίνηται ὑπάρχον ἄν τε μηδενί, πολλὰ προενέγκαντι ἀξιωτέον καθόλου ὁμολογεῖν, ἢ φέρειν ἔνστασιν ἐπὶ τίνος οὐχ οὕτως.*

the thesis, supposing it to be negative. Thus, if the thesis propounded be, The soul is a number: you divide number into its two species, odd and even, and prove that the soul is neither odd nor even; wherefore, it is not a number.[a]

IV.

After this long catalogue of *Loci* belonging to debate on propositions of Accident, Aristotle proceeds to enumerate those applicable to propositions of Genus and of Proprium. Neither Genus nor Proprium is often made subject of debate as such; but both of them are constituent elements of the debate respecting Definition, which is of frequent occurrence.[b] For that reason, both deserve to be studied.

When the thesis propounded affirms that A is genus of B, you will run over all the cognates of B, and see whether there is any one among them respecting which A cannot be affirmed as genus. If there be, this is a good argument against the thesis; for the genus ought to be predicable of all. Next, whether what is really no more than an accident is affirmed as genus, which ought to belong to the essence of the subject. Perhaps (*e.g.*) white is affirmed in the thesis as being genus of snow; but white cannot be truly so affirmed; for it is not of the essence of snow, but is only a quality or accident.[c] Examine whether the predicate A comes under the definition already given of an Accident,—that which may or may not be predicated of the subject; also, whether A and B both fall under the same one out of the ten Categories or Predicaments. If B the subject comes under *Essentia*, or *Quale*, or *Ad Aliquid*, A the predicate ought also to belong to *Essentia*, or *Quale*, or *Ad Aliquid*: the species and the genus ought to come under the same Category.[d] If this be not the case in a thesis of Genus, the thesis cannot be maintained.

You are aware that the species always partakes of the genus, while the genus never partakes of the species; to *partake*

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[a] Topic. III. vi. p. 120, a. 37-b. 6. It would appear from the examples here given by Aristotle—ὁ χρόνος οὐ κινεῖται, ὁ χρόνος οὐκ ἔστι κίνησις, ἡ ψυχὴ οὐκ ἔστιν ἀριθμός, that he considers these propositions as either indefinite or particular.

[b] Ibid. IV. i. p. 120, b. 12: μετὰ δὲ ταῦτα περὶ τῶν πρὸς τὸ γένος καὶ τὸ ἴδιον ἐπισκεπτέον· ἔστι δὲ ταῦτα στοιχεῖα τῶν πρὸς τοὺς ὅρους· περὶ αὐτῶν δὲ τούτων ὀλιγάκις αἱ σκέψεις γίνονται τοῖς διαλεγομένοις.

[c] Ibid. b. 23-29.

[d] Ibid. p. 120, b. 36-p. 121. a, 9. καθόλου δ' εἰπεῖν, ὑπὸ τὴν αὐτὴν διαίρεσιν δεῖ τὸ γένος τῷ εἴδει εἶναι.

Aristotle here enunciates this as universally true, whereas if we turn to Categor. p. 11, a. 24, seq. we shall find him declaring it not to be universally true. Compare also Topic. IV. iv. p. 124, b. 15.

meaning that the species includes the essence or definition of the genus, but the genus never includes the essence or definition of the species. You will examine, therefore, whether in the thesis propounded to you this condition is realized; if not, the thesis may be refuted. Suppose, *e.g.*, that it enunciates some superior genus as including *Ens* or *Unum*. If this were true, the genus so assigned would still partake of *Ens* and *Unum;* for *Ens* and *Unum* may be predicated of all existences whatever. Therefore what is enunciated in the thesis as a genus, cannot be a real genus.[a]

Perhaps you may find something respecting which the subject (species) may be truly affirmed, while the predicate (genus) cannot be truly affirmed. If so, the predicate is not a real genus. Thus, the thesis may enunciate *Ens* or *Scibile* as being the genus of *Opinabile*. But this last, the species or subject *Opinabile*, may be affirmed respecting *Non-Ens* also; while the predicates *Ens* or *Scibile* (given as the pretended genus of *Opinabile*) cannot be affirmed respecting *Non-Ens*. You can thus show that *Ens* or *Scibile* is not the real genus of *Opinabile*.[b] The pretended species *Opinabile* (comprising as it does both *Ens* and *Non-Ens*) stretches farther than the pretended genus *Ens* or *Scibile*: whereas every real genus ought to stretch farther than any one or any portion of its constituent species.[c] The thesis may thus be overthrown, if there be any one species which stretches even equally far or is co-extensive with the pretended genus.[d]

It is a general truth that the same species cannot belong to two distinct genera, unless one of the two be subordinate to the other, or unless both of them be comprehended under some common higher genus. You will examine, therefore, whether there is any other genus, besides the predicate of the thesis, to which the subject of the thesis can be referred. If there be some other genus, not under either of the two conditions above indicated, the predicate enunciated by the thesis cannot be the real genus of the subject. Thus, if the thesis declares justice to be science (or to belong to the genus science), you may remark that there is another distinct genus (virtue) to which justice also belongs. In this particular case, however, it would be replied that science and virtue can both be referred to one and the same higher genus, viz., habit and disposition. There-

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[a] Topic. IV. i. p. 121, a. 10-19.

[b] Ibid. a. 20-26.

[c] Ibid. b. 1-14. στοιχεῖον δὲ πρὸς ἅπαντα τὰ τοιαῦτα, τὸ ἐπὶ πλέον τὸ γένος ἢ τὸ εἶδος καὶ τὴν διαφορὰν λέγεσθαι· ἐπ' ἔλαττον γὰρ καὶ ἡ διαφορὰ τοῦ γένους λέγεται.

[d] Ibid. b. 4.

fore the thesis, Justice is science, will not be truly open to objection on this ground.[a]

Again, if the predicate of the thesis be the true genus of the subject, all the higher genera in which the predicate is contained must also be predicated *in Quid* (as the predicate itself is respecting the subject. This you must show by an induction of particular instances, no counter-instance being producible.[b] If the thesis enunciated does not conform to this condition, you will have a good argument against it. You will also run over the sub-species that are comprehended in the subject of the thesis, considered as a genus; and you will examine whether the predicate of the thesis (together with all its superior genera) is predicable essentially or *in Quid* of all these sub-species. If you can find any one among these sub-species, of which it is not essentially predicable, the predicate of the thesis is not the true genus of the subject;[c] the like also, if the definitions of these genera are not predicable of the subject or its sub-species.[d]

Perhaps the thesis may enunciate as a genus what is really nothing more than a differentia. It may also enunciate the differentia either as a part of the genus or as a part of the species; or it may enunciate the genus either as a part of the differentia or as a part of the species. All these are attackable. The differentia is not a genus, nor does it respond to the question *Quid est*, but to the question *Quale quid est*. It is always either more more extensive than the species, or co-extensive therewith.[e] If none of the differentiæ belonging to a genus can be predicated of a species, neither can the genus itself be predicated thereof. Thus, neither odd nor even can be predicated of the soul; accordingly, neither can the genus

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[a] Topic. IV. ii. p. 121, b. 24, seq.

[b] Ibid. p. 122, a. 5-19. *ὅτι δὲ ἑνὸς ἐν τῷ τί ἐστι κατηγορουμένου πάντα τὰ λοιπά, ἄνπερ κατηγορῆται, ἐν τῷ τί ἐστι κατηγορηθήσεται, δι' ἐπαγωγῆς ληπτέον.*

[c] Ibid. a. 21-b. 6.

[d] Ibid. b. 7-11. *εἰ οὖν που διαφωνεῖ, δῆλον ὅτι οὐ γένος τὸ ἀποδοθέν.*

[e] Ibid. b. 12-p. 123, a. 10. *οὐδὲ δοκεῖ μετέχειν ἡ διαφορὰ τοῦ γένους· πᾶν γὰρ τὸ μετέχον τοῦ γένους ἢ εἶδος ἢ ἄτομόν ἐστιν. ἀεὶ γὰρ ἡ διαφορὰ ἐπ' ἴσης ἢ ἐπὶ πλεῖον τοῦ εἴδους λέγεται.—ἐπὶ πλέον τε γὰρ τὸ γένος τῆς διαφορᾶς δεῖ λέγεσθαι, καὶ μὴ μετέχειν τῆς διαφορᾶς.*

As an example to illustrate the enclosing of the genus within the species (*εἰ τὸ γένος εἰς τὸ εἶδος ἔθηκεν*), Aristotle cites a definition given by Plato, who defined *τὴν κατὰ τόπον κίνησιν*, as *φοράν*. Now *φορὰ* is less extensive in its meaning than *ἡ κατὰ τόπον κίνησις*, which includes *βάδισις*, and other terms of motion apart from or foreign to *φορά*.—Example of enunciating differentia as a genus is, if immortal be given as the genus to which a god belongs. Immortal is the differentia belonging to *ζῷον*, and constituting therewith the species god.—Example of enclosing the differentia in the genus is, if odd be given as the essence of number (*ὅπερ ἀριθμόν*).—Example of enclosing differentia in the species is, if immortal be put forward as the essence of a god (*ὅπερ θεόν*).—Example of enclosing the genus in the differentia is number given as the essence of the odd. —Example of enunciating the genus as a differentia is, when change of place is given as the differentia of *φορά*.

(number) be predicated of the soul.[a] If the species be *prius naturâ*, so that when it disappears the enunciated genus disappears along with it, this cannot be the real genus; nor, if the enunciated genus or differentia can be supposed to disappear and yet the species does not disappear along with them.[b] If the species partakes of (includes in its essence) something contrary to the enunciated genus, this last cannot be the real genus; nor, if the species includes something which cannot possibly belong to what is in that genus. Thus, if the soul partakes of (or includes in its essence) life, and if no number can possibly live, the soul cannot be a species of number.[c]

Again, the generic term and the specific term ought to be univocal in signification. You must examine (according to the tests indicated in the First Book of the Topica) whether it be taken equivocally in the thesis. If it be so, you have a ground of attack, and also if it be taken metaphorically; for every genus ought to be enunciated in the proper sense of the term, and no metaphor can be allowed to pass as a genus.[d] Note further that every true genus has more than one distinct species. You will, therefore, examine whether any other species, besides the subject of the thesis, can be suggested as belonging to the predicate of the thesis. If none, that predicate cannot be the true genus of the subject.[e]

Several *loci* are furnished by Contraries, either to the species or the genus. If there be something contrary to the species, but nothing contrary to the genus, then that which is contrary to the species ought to be included under the same genus as the species itself; but, if there be something contrary to the species, and also something contrary to the genus, then that which is contrary to the species ought to be included in that which is contrary to the genus. Each of these doctrines you will have to make good by induction of particular cases.[f] If that which is contrary to the species be a genus itself (*e.g.*, *bonum*) and not included in any superior genus, then the like will be true respecting the species itself: it will not be included in any genus; and the predicate of the thesis will not be a true genus. *Bonum* and *malum* are not included in any common superior genus; each is a genus *per se*.[g] Or suppose that the subject (species) of

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[a] Topic. IV. ii. p. 123, a. 11-14.

[b] Ibid. a. 14-19.

[c] Ibid. iii. a. 20-26.

[d] Ibid. a. 27-37. σκοπεῖν δὲ καὶ εἰ τὸ μεταφορᾷ λεγόμενον ὡς γένος ἀποδέδωκεν, οἷον τὴν σωφροσύνην συμφωνίαν· πᾶν γὰρ γένος κυρίως κατὰ τῶν εἰδῶν κατηγορεῖται, ἡ δὲ συμφωνία κατὰ τῆς σωφροσύνης οὐ κυρίως ἀλλὰ μεταφορᾷ· πᾶσα γὰρ συμφωνία ἐν φθόγγοις.

[e] Topic. IV. iii. p. 123, a. 30.

[f] Ibid. b. 1-8. φανερὸν δὲ τούτων ἕκαστον διὰ τῆς ἐπαγωγῆς.

[g] Ibid. b. 8-12.

the thesis, and the predicate (genus) of the thesis, have both of them contraries; but that in the one there is an intermediate between the two contraries, and in the other, not. This shows that the predicate cannot be the true genus of the species; for, wherever there is an intermediate between the two contraries of the species, there also is an intermediate between the two contraries of the genus; and *vice versâ*.[a] If there be an intermediate between the two contraries of the species, and also an intermediate between the two contraries of the genus, you will examine whether both intermediates are of like nature, designated by analogous terms. If it be not so (if, *e.g.*, the one intermediate is designated by a positive term, and the other only by a negative term), you will have ground for contending against the thesis, that the predicate enunciated therein is not the true genus of the subject. At any rate, this is a probable (ἔνδοξον) dialectical argument—to insist upon analogy between the two intermediates; though there are some particular cases in which the doctrine does not hold.[b]

Again, suppose different conditions: that there is no contrary to the genus, but that there is a contrary to the species. You will examine whether not merely the contrary of the species, but also the intermediate between its two contraries, is included in the same genus; for, if the two contraries are included therein, the intermediate ought also to be included. This is a line of argument *probable* (*i.e.*, conformable to general presumption, and recommendable in a dialectical debate), though there are not wanting examples adverse to it: thus, excess and defect are included in the same genus evil, but the moderate or measured (τὸ μέτριον) is not in the genus evil, but in the genus good.[c] We must remark, moreover, that though it be a probable dialectical argument, that, wherever the genus has a contrary, the species will also have a contrary, yet there are cases adverse to this principle. Thus, sickness in general has for its contrary health in general; but particular species of sickness (such as fever, ophthalmia, gout, &c.) have no contrary.[d]

Such will be your way of procedure, if the thesis propounded be Affirmative, and if you have to make out a negative against it. But if, on the contrary, the thesis be Negative, so that you have to make out an affirmative against it, you have then three

[a] Topic. IV. iii. p. 123, b. 12, seq.

[b] Ibid. b. 17-23: ἔνστασις τούτου ὅτι ὑγιείας καὶ νόσου οὐδὲν μεταξύ, κακοῦ δὲ καὶ ἀγαθοῦ· ἢ εἰ ἔστι μέν τι ἀμφοῖν ἀνὰ μέσον, καὶ τῶν εἰδῶν καὶ τῶν γενῶν, μὴ ὁμοίως δέ, ἀλλὰ τῶν μὲν κατ' ἀπόφασιν, τῶν δ' ὡς ὑποκείμενον. ἔνδοξον γὰρ τὸ ὁμοίως ἀμφοῖν, καθάπερ ἐπ' ἀρετῆς καὶ κακίας, καὶ δικαιοσύνης καὶ ἀδικίας· ἀμφοῖν γὰρ κατὰ ἀπόφασιν τὰ ἀνὰ μέσον.

[c] Ibid. b. 23-30.

[d] Ibid. b. 30-37.

lines of procedure open. 1. The genus may have no contrary, while the species has a contrary: in that case, you may perhaps be able to show that the contrary of the species (subject) is included in the predicate of the thesis (genus); if so, then the species also will be included therein. 2. Or, if you can show that the intermediate between the species and its contrary is included in the predicate (genus), then that same genus will also include the species and its contrary; for, wherever the intermediate is, there also are the two extremes between which it is intermediate. 3. Lastly, if the genus has a contrary as well as the species, you may be able to show that the contrary of the species is included in the contrary of the genus; assuming which to be the case, then the species itself will be included in the genus.[a] These are the three modes of procedure, if your task is to make out the negative.

If the genus enunciated by the thesis be a true one, all the Derivatives and Collaterals of the predicate will be fit and suitable for those of the subject. Thus, if justice be a sort of science, justly will be scientifically, and the just man will be a scientific man. This *locus* is useful to be kept in mind, whether you have to make out an affirmative or a negative.[b] You may reason in the same way about the *Analoga* of the predicate and the subject; about the productive and destructive causes of each; the manifestations present, past, and future, of each, &c.[c]

When the opposite of the species (subject) is Privative, the thesis will be open to attack in two ways. 1. If the privative opposite be contained in the predicate, the subject itself will not be contained therein; for it is a general truth that a subject and its privative opposite are never both of them contained in the same lowest genus: thus, if vision is sensible perception, blindness is *not* sensible perception. 2. If both the species and the genus have privative opposites, then if the privative opposite of the species be contained in the privative opposite of the genus, the species itself will also be contained in the genus; if not, not. Thus, if blindness be an inability of sensible perception, vision will be a sensible perception. This last *locus* will be available, whether you are making out an affirmative or a negative.[d]

If the predicate of the thesis be a true genus, you may convert the thesis simply, having substituted for the predicate the denial of its Contradictory; if not, not. *Vice versâ*, if the new pro-

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[a] Topic IV. iii. p. 124, a. 1-9.
[b] Ibid. a. 10-14.
[c] Ibid. iv. p. 124, a. 15-34.
[d] Ibid. a. 35-b. 6.

position so formed be true, the predicate of the thesis will be a true genus; if not, not. Thus, if good be the true genus of pleasurable, nothing that is not good will be pleasurable. This *locus* also will serve both for making out an affirmative and for making out a negative.[a]

If the subject (species) of the thesis be a Relative, you will examine whether the predicate (genus) be relative also; if not, it will not be the true genus of the subject. The converse of this rule, however, will not hold; and indeed the rule itself is not absolutely universal.[b] You may also argue that, if the correlate of the genus be not the same as the correlate of the species, the genus cannot be truly predicated of that species: thus, half is the correlate of double, but half is not the proper correlate of multiple; therefore, multiple is not the true genus of double. But your argument may here be met by contradictory instances; thus, cognition has reference to the *cognitum*, but *habitus* and *dispositio* (the genera to which *cognitio* belongs) do not refer to *cognitum*, but to *anima*.[c] You may also examine whether the correlate, when applied to the genus, is put in the same case (*e.g.*, genitive, dative, &c.) as when it is applied to the species: if it be put into a different case, this affords presumption that the genus is not a true genus; though here again instances may be produced showing that your presumption will not hold universally. Farther, you will observe whether the correlates thus similarly inflected reciprocate like the species and genus; if not, this will furnish you with the same adverse presumption.[d]

Again, examine whether the correlate of the genus is genus to the correlate of the species; if it be not so, you may argue that the genus is not truly predicated. Thus, if the thesis affirms that *perceptio* is the genus of *cognitio*, it will follow that *percipibile* is the genus of *cognoscibile*. Now this cannot be maintained; for there are some *cognoscibilia* which are not perceivable, *e.g.*, some *cogitabilia* (*intelligibilia*, *νοητά*). Since therefore *percipibile* is not the true genus of *cognoscibile*, neither can *perceptio* be the true genus of *cognitio*.[e]

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[a] Topic. IV. iv. p. 124, b. 7-14: πάλιν ἐπὶ τῶν ἀποφάσεων σκοπεῖν ἀνάπαλιν, &c.

[b] Ibid. b. 15-22.

[c] Ibid. b. 23-34.

[d] Ibid. b. 35, seq.

[e] Ibid. p. 125, a. 25-32: ὁρᾶν δὲ καὶ εἰ τοῦ ἀντικειμένου τὸ ἀντικείμενον γένος, οἷον εἰ τοῦ διπλασίου τὸ πολλαπλάσιον καὶ τοῦ ἡμίσεος τὸ πολλοστημόριον· δεῖ γὰρ τὸ ἀντικείμενον τοῦ ἀντικειμένου γένος εἶναι.

We must take note here of the large sense in which Aristotle uses Ἀντικείμενα—*Opposita*, including as one of the four varieties *Relata* and *Correlata* = *Relative-Opposita* (to use a technical word familiar in logical manuals). I have before (*supra*, p. 105) remarked the inconvenience of calling the Relative *opposite* to its Correlate; and have observed that it is logically incorrect to treat *Relata* as a

Suppose the thesis predicates of memory that it is—a continuance of cognition. This will be open to attack, if the predicate be affirmed as the genus (or even as the accident) of the subject. For every continuance must be *in* that which continues. But memory is of necessity *in* the soul; it cannot therefore be *in* cognition.[a] There is another ground on which the thesis will be assailable, if it defines memory to be—a habit or acquirement retentive of belief. This will not hold, because it confounds habit or disposition with act; which last is the true description of memory. The opposite error will be committed if the respondent defines perceptivity to be a—movement through or by means of the body. Here perceptivity, which is a habit or disposition, is ranked under movement, which is the act exercising the same, *i.e.*, perceptivity in actual exercise.[b] Or the mistake may be made of ranking some habit or disposition under the power consequent on the possession thereof, as if this power were the superior genus: thus the respondent may define gentleness to be a continence of anger; courage, a continence of fears; justice, a continence of appetite of lucre. But the genus here assigned is not a good one: for a man who feels no anger is called gentle; a man who feels no fear is called courageous; whereas the continent man is he who feels anger or fear, but controls them. Such controlling power is a natural consequence of gentleness and courage, insomuch that, if the gentle man happened to feel anger, or the courageous man to feel fear, each would control these impulses; but it is no part of the essence thereof, and therefore cannot be the genus under which they fall.[c] A like mistake is made if pain be predicated as the genus of anger, or supposition as the genus of belief. The angry man doubtless feels pain, but his pain precedes his anger in time, and is the antecedent cause thereof; now the genus can never precede its species in time. So also a man may have the same supposition sometimes with belief, sometimes without it; ac-

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species or mode of the genus *Opposita*. The reverse would be more correct: we ought to rank *Opposita* as a species or mode under the genus *Relata*. Since Aristotle numbers *Relata* among the ten Categories, he ought to have seen that it cannot be included as a subordinate under any superior genus.

[a] Topic. IV. iv. p. 125, b. 6: *οἷον εἰ τὴν μνήμην μονὴν ἐπιστήμης εἶπεν. πᾶσα γὰρ μονὴ ἐν τῷ μένοντι καὶ περὶ ἐκεῖνο, ὥστε καὶ ἡ τῆς ἐπιστήμης μονὴ ἐν τῇ ἐπιστήμῃ. ἡ μνήμη ἄρα ἐν τῇ ἐπιστήμῃ, ἐπειδὴ μονὴ τῆς ἐπιστήμης ἐστίν. τοῦτο δ' οὐκ ἐνδέχεται· μνήμη γὰρ πᾶσα ἐν ψυχῇ.* A definition similar to this is found in the Kratylus of Plato, p. 437, B.: *ἔπειτα δὲ ἡ μνήμη παντί που μηνύει ὅτι μονή ἐστιν ἐν τῇ ψυχῇ, ἀλλ' οὐ φορά.*

[b] Ibid. v. p. 125, b. 15-19. *οἷον τὴν αἴσθησιν κίνησιν διὰ σώματος· ἡ μὲν γὰρ αἴσθησις ἕξις, ἡ δὲ κίνησις ἐνέργεια.* This, too, seems to allude to Plato's explanation of *αἴσθησις* in the Timæus, pp. 43, C, 64, B; compare also the Platonic or pseudo-Platonic Definitiones, p. 414, C.

[c] Topic. IV. v. p. 125, b. 20-27.

cordingly, supposition cannot be the genus of belief any more than the same animal can be sometimes a man, sometimes a brute.[a] And indeed the same negative conclusion would follow, even if we granted that every supposition was always attended with belief. For, in that case, supposition and belief would be co-extensive terms; but the generic term must always be more extensive than its specific.[b]

You will farther examine whether the predicate of the thesis be of a nature to inhere in the same substance as the subject. If it be not, it cannot be truly predicated thereof, either as genus or even as accident. White (species) and colour (genus) are of a nature to inhere or belong to the same substance. But, if the thesis declares that shame is a species of fear, or that anger is a species of pain, you may impugn it on the ground that shame belongs to the reasoning element in man, fear to the courageous or energetic element; and that pain belongs to the appetitive element, anger to the courageous. This proves that fear can neither be the genus nor the accident of shame; that pain can neither be the genus nor the accident of anger.[c]

Suppose the thesis declares that animal is a species under the genus *visibile* or *percipibile*. You may oppose it by pointing out that animal is only *visibile secundum quid*, or partially; that is, only so far as regards body, not as regards mind. But the species always partakes of its genus wholly, not partially or *secundum quid;* thus, man is not partially animal, but wholly or essentially animal. If what is predicated as the genus be not thus essentially partaken, it cannot be a true genus; hence neither *visibile* nor *percipibile* is a true genus of animal.[d]

Sometimes what is predicated as the genus is, when compared to its species, only as a part to the whole; which is never the case with a true genus. Some refer animal to the genus living body; but body is only part of the whole animal, and therefore cannot be the true genus thereof.[e] Sometimes a species which

[a] Waitz, in his notes (p. 478), says that Aristotle is here in the wrong. But I do not agree with Waitz. Aristotle considers πίστις to be an accidental accompaniment of ὑπόληψις, not a species thereof. It may be present or absent without determining any new specific name to ὑπόληψις, which term has reference only to the intellectual or conceptive part of the mental supposition. At least there seems to be nothing contradictory or erroneous in what Aristotle here says, though he does not adhere everywhere to this restricted meaning of ὑπόληψις.

[b] Topic. IV. v. p. 125, b. 28-p. 126, a. 2.

[c] Ibid. p. 126, a. 3-16. Compare V. iv. p. 133, a. 31. Aristotle appears here to recognize the Platonic doctrine as laid down in the Republic and Timæus, asserting either three distinct parts of the soul, or, rather, three distinct souls. In the treatise De Animâ (III. ix. p. 432, a. 25; I. v. p. 411, b. 25), he dissents from and impugns this same doctrine.

[d] Topic. IV. v. p. 126, a. 17-25.

[e] Ibid. a. 26-29.

is blameworthy and hateful, or a species which is praiseworthy and eligible, may be referred to the power or capacity from which it springs, as genus; thus, the thief, a blameworthy and hateful character, may be referred to the predicate—capable of stealing another man's property. But this, though true as a predicate, is not the true genus; for the honest man is also capable of so acting, but he is distinguished from the thief by not acting so, nor having the disposition so to act. All power and capacity is eligible; if the above were the true genus of thief, it would be a case in which power and capacity is blameworthy and hateful. Neither, on the other hand, can any thing in its own nature praiseworthy and eligible, be referred to power and capacity as its genus; for all power and capacity is praiseworthy and eligible not in itself or its own nature, but by reason of something else, namely, its realizable consequences.[a]

Again, you may detect in the thesis sometimes the mistake of putting under one genus a species which properly comes under two genera conjointly, not subalternate one to the other; sometimes, the mistake of predicating the genus as a differentia, or the differentia as a genus.[b] Sometimes, also, the subject in which the attribute or affection resides is predicated as if it were the genus of such affection; or, *è converso*, the attribute or affection is predicated as the genus of the subject wherein it resides; *e.g.*, when breath or wind, which is really a movement of air, is affirmed to be air put in motion, and thus constituted as a species under the genus air; or when snow is declared to be water congelated; or mud, to be earth mixed with moisture.[c] In none of these cases is the predicate a true genus; for it cannot be always affirmed of the subject.

Or perhaps the predicate affirmed as genus may be no genus at all; for nothing can be a genus unless there are species contained under it; *e.g.*, if the thesis declare white to be a genus, this may be impugned, because white objects do not differ *in specie* from each other. Or a mere universal predicate (such as *Ens* or *Unum*) may be put forward as a genus or differentia;

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[a] Topic. IV. v. p. 126, a. 30-b. 6: *ὁρᾶν δὲ καὶ εἴ τι τῶν ψεκτῶν ἢ φευκτῶν εἰς δύναμιν ἢ τὸ δυνατὸν ἔθηκεν, οἷον τὸν σοφιστὴν ἢ διάβολον ἢ κλέπτην τὸν δυνάμενον λάθρα τὰ ἀλλότρια κλέπτειν.*

The general drift of Aristotle is here illustrated better by taking the thief separately, apart from the other two. But we must notice here the proof of his temper or judgment concerning the persons called Sophists, when we find him grouping them in the bunch of *ψεκτὰ* and *φευκτὰ* along with thieves. The majority of his uninstructed contemporaries would probably have agreed in this judgment, but they would certainly have enrolled Aristotle himself among the Sophists thus depreciated.

[b] Ibid. b. 7-33.

[c] Ibid. b. 34-p. 127, a. 19.

or a simple concomitant attribute, or an equivocal term, may be so put forward.[a]

Perhaps it may happen that the subject (species) and the predicate (genus) of the thesis may each have a contrary term; and that in each pair of contrary terms one may be better, the other worse. If, in that case, the better species be referred to the worse genus, or *vice versâ*, this will render the thesis assailable. Or perhaps the species may be fit to be referred equally to both the contrary genera; in which case, if the thesis should refer it to the worse of the two, that will be a ground of objection. Thus, if the soul be referred to the genus *mobile*, you are at liberty to object that it is equally referable to the genus *stabile*: and that, as the latter is the better of the two, it ought to be referred to the better in preference to the worse.[b]

There is a *locus* of More and Less, which may be made available in various ways. Thus, if the genus predicated admits of being graduated as more or less, while the species of which it is predicated does not admit of such graduation, you may question the applicability of the genus to the species.[c] You may raise the question also, if there be any thing else which looks equally like the true genus, or more like it than the genus predicated by the thesis. This will happen often, when the essence of the species includes several distinct elements; *e.g.*, in the essence of anger, there is included both pain (an emotional element), and the supposition or belief of being undervalued (an intellectual element); hence, if the thesis ranks anger under the genus pain, you may object that it equally belongs to the genus supposition.[d] This *locus* is useful for raising a negative question, but will serve little for establishing an affirmative. Towards the affirmative, you will find advantage in examining the subject (species) respecting which the thesis predicates a given genus; for, if it can be shown that this supposed species is no real species but a genus, the genus predicated thereof will be *à fortiori* a genus.[e]

Some think (says Aristotle)[f] that Differentia as well as Genus is predicated essentially respecting the Species. Accordingly, Genus must be discriminated from Differentia. For such dis-

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[a] Topic. IV. vi. p. 127, a. 20-b. 7.

[b] Ibid. b. 8-17.

[c] Ibid. b. 18-25: ἔτι ἐκ τοῦ μᾶλλον καὶ ἧττον, ἀνασκευάζοντι μέν, εἰ τὸ γένος δέχεται τὸ μᾶλλον, τὸ δ' εἶδος μὴ δέχεται μήτ' αὐτὸ μήτε τὸ κατ' ἐκεῖνο λεγόμενον.

[d] Ibid. b. 26-37: χρήσιμος δ' ὁ τόπος ἐπὶ τῶν τοιούτων μάλιστα ἐφ' ὧν πλείω φαίνεται τοῦ εἴδους ἐν τῷ τί ἐστι κατηγορούμενα, καὶ μὴ διώρισται, μηδ' ἔχομεν εἰπεῖν ποῖον αὐτῶν γένος, &c.

[e] Ibid. b. 38-p. 128, a. 12.

[f] Ibid. a. 20, seq.: ἐπεὶ δὲ δοκεῖ τισὶ καὶ ἡ διαφορὰ ἐν τῷ τί ἐστι τῶν εἰδῶν κατηγορεῖσθαι, χωριστέον τὸ γένος ἀπὸ τῆς διαφορᾶς, &c.

crimination the following characteristics are pointed out:—1. Genus has greater extent in predication than Differentia. 2. In replying to the enquiry, *Quid est?* it is more suitable and significant to declare the Genus than the Differentia. 3. Differentia declares a quality of Genus, and therefore presupposes Genus as already known; but Genus does not in like manner presuppose Differentia. If you wish to show that belief is the genus to which cognition belongs, you must examine whether the *cognoscens* believes *quâ cognoscens*. If he does so, your point is made out.[a]

Wherever a predicate is universally true of its subject, while the proposition is not true if simply converted (*i.e.*, wherever the predicate is of larger extension than the subject), there is difficulty in distinguishing it from a genus. Accordingly, when you are respondent, maintaining the affirmative side, you will use such predicate as if it were a genus; but, when you are assailant, you will not allow the respondent to do so. You may quote against him the instance of *Non-Ens;* which is predicable of every thing generated, but which is not a genus, since it has no species under it.[b]

V.

Aristotle passes, in the Fifth book of the Topica, to those debates in which the thesis set up declares the predicate as Proprium of the subject.

A Proprium may belong to its subject either *per se* and *semper*, or relatively to something else and occasionally or sometimes. It is a proprium *per se* of man to be an animal by nature tractable. It is a relative proprium of the soul in regard to the body, to exercise command; of the body in regard to the soul, to obey command. It is a proprium *semper* of a god, to be immortal; it is an occasional *proprium* (*i.e.*, sometimes) of this or that man, to be walking in the market-place.[c] When the proprium is set out relatively to something else, the debate must involve two questions, and may involve four. Thus, if the thesis affirms that it is a proprium of man relatively to horse (discriminating man from horse) to be by nature two-footed, you

[a] Topic. IV. vi. p. 128, a. 35. If you are trying to show τὴν ἐπιστήμην ὅπερ πίστιν, you must examine εἰ ὁ ἐπιστάμενος ᾗ ἐπίσταται πιστεύει· δῆλον γὰρ ὅτι ἡ ἐπιστήμη πίστις ἄν τις εἴη.

[b] Ibid. a. 38-b. 9.

[c] Ibid. V. i. p. 128, b. 14-21. That which Aristotle calls Proprium *per se* is a proprium of the subject as much *relative* as what he calls specially the *relative* Proprium. The Proprium *per se* discriminates the subject from everything else; the *relative* Proprium discriminates it from some given correlate.

may (as opponent) either deny that man is two-footed, or affirm that horse is two-footed; or you may go farther and affirm that man is by nature four-footed, or deny that horse is by nature four-footed. If you can succeed in showing any one of these four, you will have refuted the thesis.[a]

The Proprium *per se* discriminates its subject from everything else, and is universally true thereof; the *relative* Proprium discriminates its subject only from some other assignable subject. The relative Proprium may be either constant and universally true, or true with exceptions—true and applicable in the ordinary course of things: it may be tested through those *Loci* which have been enumerated as applicable to the Accident. The Proprium *per se*, and the *constant* Proprium, have certain *Loci* of their own, which we shall now indicate. These are the most logical (*sensu Aristotelico*) or suitable for Dialectic; furnishing the most ample matter for debates.[b]

Aristotle distinguishes (1) those cases in which the alleged proprium is a true proprium, but is incorrectly or informally set out in the thesis, from those (2) in which it is untruly predicated, or is no proprium at all.

To set out a proprium well, that which is predicated ought to be clearer and better known than the subject of which it is predicated, since the purpose of predicating the proprium is to communicate knowledge.[c] If it be more obscure or less known, you may impugn the thesis as bad in form, or badly set out. Thus, if the thesis declare, as a proprium of fire, that fire is of all things the most like to the soul, this is not well set out, because the essence of the soul is not so well known as the essence of fire. Moreover, the fact that the predicate belongs to the subject, ought to be better known even than the subject itself; for whoever is ignorant that A belongs to B at all, cannot possibly know that A is the proprium of B.[d] Thus, if the thesis declare, as proprium of fire, that it is the first or most universal subject in which it is the nature of soul to be found, the predicate is here doubly unknowable: first, the hearer does not know that the soul is found in fire at all; next, he does not

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[a] Topic. V. i. p. 128, b. 22-33.

[b] Ibid. b. 34-p. 129, a. 35. *τῶν δ' ἰδίων ἐστὶ λογικὰ μάλιστα* &c. He explains presently what he means by *λογικά*—*λογικὸν δὲ τοῦτ' ἐστὶ πρόβλημα, πρὸς ὃ λόγοι γένοιντ' ἂν καὶ συχνοὶ καὶ καλοί.* The distinctions in this paragraph are not very sharply drawn.

[c] Ibid. p. 129, b. 7: *γνώσεως γὰρ ἕνεκα τὸ ἴδιον ποιούμεθα· διὰ γνωριμωτέρων οὖν ἀποδοτέον· οὕτω γὰρ ἔσται κατανοεῖν ἱκανῶς μᾶλλον.*

He repeats the same dictum, substantially, in the next page, p. 130, a. 4: *τὸ γὰρ ἴδιον τοῦ μαθεῖν χάριν ἀποδίδοται;* and, again, p. 131, a. 1.

[d] Ibid. b. 15: *ὁ μὴ γὰρ εἰδὼς εἰ τῷδ' ὑπάρχει, οὐδ' εἰ τῷδ' ὑπάρχει μόνῳ γνωριεῖ.*

know that fire is the *first* subject in which soul is found. On the other hand, the respondent will repel your attack if he can show that his proprium is more knowable in both the two above-mentioned ways. If, for example, he declares as thesis, To have sensible perception is the proprium of an animal, here the proprium is both well known in itself, and well known as belonging to the given subject. Accordingly, it is well set out, as far as this condition is concerned.[a]

A second condition of its being well set out is, that it shall contain neither equivocal term nor equivocal or amphibolical proposition. Thus, if the thesis declares, To perceive is the proprium of an animal, it is equivocal; for it may mean either to have sensible perception, or to exercise sensible perception actually. You may apply the test to such a thesis, by syllogizing from one or both of these equivocal meanings. The respondent will make good his defence, if he shows that there is no such equivocation: as, for example, if the thesis be, It is a proprium of fire to be the body most easily moved into the upper region; where there is no equivocation, either of term or proposition.[b] Sometimes the equivocation may be, not in the name of the proprium itself, but in the name of the subject to which it is applied. Where this last is not *unum et simplex* but equivocal, the thesis must specify which among the several senses is intended; and, if that be neglected, the manner of setting out is incorrect.[c]

Another form of the like mistake is, where the same term is repeated both in the predicate and in the subject; which is often done, both as to Proprium and as to Definition, though it is a cause of obscurity, as well as a tiresome repetition.[d] The repetition may be made in two ways: either directly, by the same term occurring twice; or indirectly, when the second term given is such that it cannot be defined without repeating the first. An example of direct repetition is, Fire is a *body* the rarest among *bodies* (for proprium of fire). An example of indirect repetition is, Earth is a *substance* which tends most of all *bodies* downwards to the lowest region (as proprium of earth); for, when the respondent is required to define *bodies*, he must define them—such and such *substances*.[e] An example free from objection on this ground is, Man is an animal capable of receiving cognition (as proprium of man).

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[a] Topic. V. ii. p. 129, b. 21-29.

[b] Ibid. b. 30-p. 130, a. 13.

[c] Ibid. p. 130, a. 15-28.

[d] Ibid. a. 30-34. ταράττειγὰρ τὸν ἀκούοντα πλεονάκις λεχθέν·—καὶ πρὸς τοῦ τοις ἀδολεσχεῖν δοκοῦσιν.

[e] Ibid. a. 34-b. 5. ἓν γὰρ καὶ ταὐτόν ἐστι σῶμα καὶ οὐσία τοιαδί· ἔσται λὰρ οὗτος τὸ οὐσία πλεονάκις εἰρηκώς.

Another mode of bad or incorrect setting out is, when the term predicated as proprium belongs not only to the subject, but also to all other subjects. Such a proposition is useless; for it furnishes no means of discriminating the subject from anything; whereas discrimination is one express purpose of the Proprium as well as of the Definition.[a] Again, another mode is, when the thesis declares several propria belonging to the same subject, without announcing that they are several. As the definer ought not to introduce into his definition any words beyond what are required for declaring the essence of the subject, so neither should the person who sets out a proprium add any words beyond those requisite for constituting the proprium. Thus, if the thesis enunciates, as proprium of fire, that it is the thinnest and lightest body, here are two propria instead of one. Contrast with this another proprium, free from the objection just pointed out—Moist is that which may assume every variety of figure.[b]

A farther mistake is, when the predicate declaring the proprium includes either the subject itself or some species comprehended under the subject; for example, when we are told, as a proprium of animal, that animal is a substance of which man is a species. We have already seen that the proprium ought to be better known than its subject; but man is even less known (posterior in respect to cognition) than animal, because it is a species under the genus animal.[c]

Again, our canon—That the Proprium should be better known than its subject, or should make the subject better known—will be violated in another way, if the proprium enunciated be something opposite to the subject, or in any other way *simul naturâ* as compared with the subject; and still more, if it be *posterius naturâ* as compared with the subject. Thus, if a man enunciates, as proprium of good, that good is that which is most opposite to evil, his proprium will not be well or correctly set out.[d]

Perhaps, again, the thesis may enunciate as proprium what is not constantly appurtenant to the subject, but is sometimes absent therefrom; or, intending to enunciate an occasional, proprium, it may omit to specify the qualifying epithet *occasional*.

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[a] Topic. V. ii. p. 130, b. 12: *ἀχρεῖον λὰρ ἔσται τὸ μὴ χωρίζον ἀπό τινων ςτὸ δ' ἐν τοῖς ἰδίοις λεγόμενον χωρίζειν εἶ, καθάπερ καὶ τὰ ἐν τοῖς ὅροις.*

[b] Ibid. b. 23-37.

[c] Ibid. iii. p. 130, b. 38.

[d] Ibid. p. 131, a. 12-26. This *locus* is not clear or satisfactory, as Alexander remarks in Scholia (p. 284, b. 12-23, Br.). He says that it may pass as an *ἔνδοξον*—something sufficiently plausible to be employed in Dialectic. In fact, Alexander virtually controverts this *locus* in what he says a little farther down (Schol. p. 285, a. 31), that the Proprium is always *simul naturâ* with its subject.

In either case the proprium is not well set out, and a ground is furnished for censure, which ought always to be avoided.[a]

Moreover, the proprium will not be well set out, if it be such as does not necessarily belong to the subject, but is only shown by the evidence of sense to belong thereunto. In this case, when the subject is out of the reach of sensible perception, no one knows whether the supposed proprium still continues as its attribute. Thus, suppose the thesis to enunciate as a proprium of the sun, that it is the brightest star borne in movement above the earth: the fact that it is so borne in movement above the earth is one that we know by sensible perception only; accordingly, after the sun sets and we cease to see it, we cannot be sure that it continues to be borne in movement. If a proprium knowable as such by sense be chosen, it ought to be one which is also knowable independently, as belonging to the subject by necessity. Thus, if a man enunciates, as proprium of superficies, that superficies is what first becomes coloured or first receives colour, this is a proprium well set out. For we know clearly that it must always belong to a superficies; though we may also obtain the additional evidence of sense, by looking at some perceivable body.[b]

Perhaps too the thesis may enunciate the Definition as if it were a Proprium; which is another ground for objecting that the proprium is not well set out. Thus, the thesis may enunciate, as proprium of man, that man is a land animal walking on two feet. Here what is given as proprium is the essence of man, which never ought to be affirmed in the proprium. To set out the proprium well, the predicate ought to reciprocate and to be co-extensive with the subject, but it ought not to affirm the essence thereof. A good specimen of proprium well set out is the following, Man is an animal by nature gentle; for here the predicate is co-extensive with the subject, yet does not declare the essence of the subject.[c]

Lastly, the proprium, to be well set out, though it does not declare the essence of the subject, yet ought to begin by presupposing the generic portion of the essence, and to attach itself

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[a] Topic. V. iii. p. 131, a. 27-b. 18. *οὐκ ἔσται καλῶς κείμενον τὸ ἴδιον — οὔκουν δοτέον ἐστὶν ἐπιτιμήσεως σκῆψιν.*

[b] Ibid. b. 19-36. *οἷον ἐπεὶ ὁ θέμενος ἐπιφανείας ἴδιον ὃ πρῶτον κέχρωσται, αἰσθητῷ μέν τινι προσκέχρηται τῷ κεχρῶσθαι, τοιούτῳ δ' ὃ φανερόν ἐστιν ὑπάρχον ἀεί, εἴη ἂν κατὰ τοῦτο καλῶς ἀποδεδομένον τὸ τῆς ἐπιφανείας ἴδιον.*

Aristotle means that we know clearly, *by evidence independent of sense*, that the superficies must be the first portion of the body that becomes coloured, though we may attain the additional evidence of our senses (*προσκέχρηται*) to the same fact

[c] Ibid. b. 37-p. 132, a. 9.

thereunto as a constant adjunct or concomitant. Thus, suppose the thesis to enunciate, as proprium, Animal is that which has a soul; this will not be well set out, for the predicate is not superadded or attached to the declared generic essence of animal. But, if the thesis enunciates, as proprium of man, Man is an animal capable of acquiring cognition,—this will be a proprium well set out, so far as the present objection is concerned. For here the predicate declares first the generic essence of the subject, and then superinduces the peculiar adjunct thereupon.[a]

Thus far Aristotle has pointed out certain conditions to be attended to in determining whether a Proprium is well set out or described, without determining whether it be really a Proprium or not. It may perhaps be truly predicated of the subject, and may even admit of a better description which would show it to be a proprium of the subject; but the description actually set out is defective, and the assailant is entitled to impeach it on that ground. He now proceeds to a larger discussion: What are the conditions for determining whether the supposed Proprium be really a Proprium at all, in respect to the subject of which it is predicated? Assuming that the description of it is not open to impeachment on any of the grounds above enumerated, are there not other real grounds of objection, disproving its title to the character of Proprium?[b]

1. Suppose your respondent to set up A as a proprium of B: you will examine first whether A can be truly predicated of B at all; next, if it can so be, whether it is truly predicable of B *quâ* B, or of every thing that comes under B *quâ* B. Thus, if he contends that not to be deceived by reason is a proprium of scientific men, you will be able to show that this does not hold in geometry, since geometricians are deceived by pseudographemes

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[a] Topic. V. iii. p. 131, a. 10-21.

[b] Ibid. p. 132, a. 22-27. *πότερον μὲν οὖν καλῶς ἢ οὐ καλῶς ἀποδέδοται τὸ ἴδιον, διὰ τῶνδε σκεπτέον· πότερον δ' ἴδιόν ἐστιν ὅλως τὸ εἰρημένον ἢ οὐκ ἴδιον, ἐκ τῶνδε θεωρητέον.*

The distinction here noted by Aristotle (between the two questions:—(1) Whether the alleged Proprium is well set out or clearly described? (2) Whether the alleged Proprium is a Proprium at all?) is not carried out, nor indeed capable of being carried out, with strict precision. The two heads of questions run together and become confounded. Alexander remarks (Scholia, p. 284, b. 24-46, Br.) that the three or four last-mentioned *loci* under the first head embrace the second head also. He allows only three *loci* as belonging peculiarly to the first head—*τοῦ μὴ καλῶς ἀποδεδόσθαι τὸ ἴδιον*:—(1) Equivocal terms; (2) Predicate not reciprocating or co-extensive with subject; (3) Predicate not more knowable than subject. The other *loci* (besides these three) enumerated by Aristotle under the first head, Alexander considers as belonging equally to the second head. But he commends Aristotle for making a distinction between the two heads: *οὐ γὰρ πᾶν τὸ ἀπηλλοτριωμένον τούτων, καὶ μὴ ἔχον ὁμωνύμους φωνὰς ἤ τι τῶν εἰρημένων, καὶ ἴδιον ῥητέον ἐξ ἀνάγκης.* The manner in which M. Barthélemy St. Hilaire explains this nice distinction is not clear to me (Note to his translation of Topica, p. 177).

or scientific paralogisms. Or, should the respondent deny that A is a proprium of B, you will succeed in refuting him, if you can prove that A is truly predicable of every B and *quâ* B. Thus, it is a proprium of man to be an animal capable of acquiring knowledge; because that attribute is truly predicable of every man *quâ* man.[a]

2. Again, suppose your respondent affirms a given proprium A of B: you will examine whether A can be truly predicated of every thing called B, and whether B can be truly predicated of every thing called A; if not, the alleged proprium will not hold. Thus the affirmation, A god is an animal participant of knowledge, is a true affirmation; but it would not be true to say, A god is a man: wherefore, to be participant of knowledge is not proprium of man; and, if this be the proprium which the respondent undertakes to maintain, you will be able to refute him. On the other hand, if what he undertakes is the negation of a proprium (A is not a proprium of B), you will establish the affirmative against him by showing that of every thing respecting which A can be truly affirmed B can be affirmed also, and *vice versâ*. You will thus show that A is a true proprium of B.[b]

3. Again, the respondent may perhaps affirm the subject itself as a proprium of something inherent in the subject. You may refute this by showing that, if it were so, the same thing would be a proprium of several things differing from each other in species. On the other hand, the respondent may perhaps deny that something inherent in the subject is a proprium: you may then refute him by showing that it is truly predicable of the subject only, and not truly predicable of any thing else.[c]

4. The respondent may perhaps affirm as a proprium something contained in the essence of the subject: if so, you will refute him by showing this. On the other hand, if he denies something to be a proprium, you will refute him by showing that, though it is not contained in the essence of the subject, it is nevertheless predicable co-extensively therewith.[d]

5. The respondent may affirm as a proprium that which is not a necessary concomitant of the subject, but may either precede or follow it. Or, on the other hand, he may deny something to be a proprium which you can show to be a constant and

[a] Topic. V. iv. p. 132, a. 27, seq.

[b] Ibid. b. 8-18.

[c] Ibid. b. 19-34. Alexander, in the Scholia (p. 285, a. 14, Br.) has stated this *locus* more clearly than Aristotle—τὸ γὰρ ἴδιον ὑπάρχειν δεῖ ἐν ἑτέρῳ, οὐχ ἕτερον ἐν αὐτῷ.

[d] Topic. V. iv. p. 132, b. 35 p. 133, a. 11.

necessary concomitant of the subject, without being included either in its definition or differentia. In each case you will have a ground for refuting him.[a]

6. The respondent may affirm as a proprium of the subject what he has already denied of the same subject under some other name; or he may deny of it what he has already affirmed of it under some other name. You will have grounds for refuting him.[b]

7. If there be two subjects (*e.g.*, man and horse) the same with each other in species, the respondent may affirm respecting one of them a proprium which is not the same in species with the proprium of the other. Thus, it is not a constant proprium of horse to stand still spontaneously; accordingly neither is it a constant proprium of man to move spontaneously; these two propria being the same in species, and belonging both to man and to horse *quatenus* animal.[c] If, therefore, the respondent affirms the one while he denies the other, you have an argument in refutation. On the other hand, he may propound as thesis the denial of the one proprium, while he affirms or admits the other. Here too you will be able to make good the counter-affirmation against his denial, on the ground of that which he admits. Thus, if it be proprium of man to be a walking-biped, it must also be proprium of bird to be a flying-bibed. The two pairs, man and bird, walking and flying, are the same in species with each other, since both pairs are subordinates under the same genus: man and bird are species, flying and walking are differentiæ, under the same genus animal. This *locus*, however, is not universally applicable; for perhaps one of the two predicates may not be of exclusive application to the subject, but may belong to other subjects also. Thus walking-biped designates only one variety—man; but walking-quadruped designates several—horse, ass, dog, &c. Walking-quadruped therefore is not a proprium of horse.[d]

8. There is some difficulty in discussing the proprium, when

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[a] Topic. V. iv. p. 133, a. 12-23.

[b] Ibid. a. 24-32.

[c] Ibid. a. 35-b. 5. *οἷον ἐπεὶ ταὐτόν ἐστι τῷ εἴδει ἄνθρωπος καὶ ἵππος, οὐκ ἀεὶ δὲ τοῦ ἵππου ἐστὶν ἴδιον τὸ ἑστάναι ὑφ' αὑτοῦ, οὐκ ἂν εἴη τοῦ ἀνθρώπου ἴδιον τὸ κινεῖσθαι ὑφ αὑτοῦ· ταὐτὸν γάρ ἐστι τῷ εἴδει τὸ κινεῖσθαι καὶ ἑστάναι ὑφ' αὑτοῦ, ᾗ ζῴῳ ἐστὶν ἑκατέρῳ αὐτῶν τὸ συμβεβηκέναι.* The last words are very obscure: they are explained by Waitz (p. 486)—"*ᾗ τὸ συμβεβηκέναι ἑκάτερον* (*τὸ κινεῖσθαι καὶ ἑστάναι ὑφ' αὑτοῦ* intell.) *ἑκατέρῳ αὐτῶν ἐστὶ συμβεβηκέναι ᾗ ζῴῳ*, quatenus utrumque de utroque, quatenus animal est, prædicatur."

[d] Topic. V. iv. p. 133, b. 5-14. Alexander declares this *locus* to be obscure. He comments, not without reason, on the loose manner in which Aristotle uses the term *εἶδος*; and he observes that Aristotle himself admits the *locus* to be *κατά τι ψευδής* (Schol. p. 285, a. 40-45, Br.). It is strange to read that man and horse, man and bird, are *ταὐτὸν εἴδει*, the same in *species*.

the respondent is assailed by a sophistical dialectician who avails himself of the equivocal application of *Idem* and *Diversum*: contending that Subject with an Accident becomes a different subject—*e.g.*, *homo albus*, a subject different from *homo* (so that, when a proprium has been shown to belong to *homo*, it has not been shown that the same proprium belongs to *homo albus*); and that the Abstract is a different subject from the Concrete—*e.g.* cognition, from the cognizing man (so that what has been shown as proprium of cognition has not been shown as proprium of the cognizing man). If the respondent shall himself set up these negatives, leaving to you the task of establishing the proprium against him, you will meet him by saying that *homo* is not a subject absolutely different and distinct from *homo albus*, but that there is only a notional distinction, the same subject having here two names each with a distinct connotation: *homo* has its own connotation; *homo albus* has also its own connotation, embodying in one total that which each of the terms connotes. And, when the Sophist remarks that what is a proprium of *scientia* cannot be predicated also as a proprium of *homo sciens*, you will reply that it may be so predicated, only with a slight change of inflection. For you need not scruple to employ sophistical refutation against those who debate with you in a sophistical way.[a]

9. The respondent may perhaps intend to affirm as proprium something which by nature belongs to the subject; but he may err in his mode of stating it, and may predicate it as always belonging to the subject. Thus, he may predicate biped as a proprium always belonging to man. Under this mode of expression, you will be able to show that he is wrong; for there are some men who have not two feet. On the other hand, if the respondent denies biped to be a proprium of man, relying upon the statement that it is not actually true of every in-

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[a] Topic. V. iv. p. 133, b. 15-p. 134, a. 4. πρὸς γὰρ τὸν πάντως ἐνιστάμενον, πάντως ἀντιτακτέον ἐστίν. It appears to me that Aristotle is not entitled to treat this objection as *sophistical* (*i.e.* as unfair Dialectic). He is here considering predication as Proprium, contrasted with predication as Accident. What is true as an accident respecting *homo albus*, will also be true as an accident respecting *homo*: but what is true as a proprium respecting *homo albus*, will not be true as a proprium respecting *homo*—nor *vice versâ*. This is a good *locus* for objections in predication of Proprium. There is a real distinction between *homo* and *homo albus*; between Koriskus and Koriskus *albus*: and one of the ways of elucidating that distinction is by pointing out that the proprium of one is not the same as the proprium of the other. Aristotle treats those who dwelt upon this distinction as Sophists: what their manner of noticing it may have been he does not clearly tell us; but if we are to have that logical accuracy of speech which *his* classification and theory demand, this distinction must undoubtedly be brought to view among the rest.

dividual, you will be able to show against him that it is so in the correct phraseology of belonging to man by nature.[a]

10. That which is affirmed as a proprium may belong to its subject either primarily and immediately, or in a secondary way —relatively to some prior denomination of the same subject. In such cases it is difficult to set out the proprium in terms thoroughly unobjectionable. Thus, the superficies of a body is what is *first* coloured: when we speak of *corpus album*, this is by reason of its white superficies. *Album* is a proprium true both of body and of superficies; but the explanation usually given of Proprium will not hold here—that, wherever the predicate can be affirmed, the subject can be affirmed also. *Album* is proprium of superficies; and *album* can be truly affirmed as also proprium of body; but superficies cannot be truly affirmed of body.[b]

11. The respondent who is affirming a Proprium may sometimes err by not clearly distinguishing in what mode, and in respect to what precise subject, he intends to affirm it. There are ten different modes, in one or other of which he always proposes to affirm it:[c]—

a. As belonging to the subject by nature. *E.g.*, Biped is by nature a proprium of man.

b. As belonging to the subject simply—in some way or other. *E.g.*, To have four fingers, belongs to Koriskus or some other individual man.

c. As belonging to the *species*. *E.g.*, It belongs to fire to be the most subtle of all bodies.

d. As belonging absolutely (*ἁπλῶς, καθάπερ ζῴου τὸ ζῆν*)—in virtue of the essence of the subject—*per se*.[d]

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[a] Topic. V. v. p. 134, a. 5-17. This *locus* is a question rather of phraseology than of real fact, and seems therefore rather to belong to the former class of *Loci* respecting the Proprium—*πότερον καλῶς ἢ οὐ καλῶς ἀποδέδοται τὸ ἴδιον*—than to the present class, which Aristotle declares (V. iv. p. 132, a. 25) to relate to the question *πότερον ἴδιόν ἐστιν ὅλως τὸ εἰρημενον ἢ οὐκ ἴδιον*.

[b] Topic. V. v. p. 134, a. 18-25. This is a very obscure and difficult *locus*. I am not sure that I understand it.

[c] Ibid. a. 26-b. 4: *συμβαίνει δ' ἐν ἐνίοις τῶν ἰδίων ὡς ἐπὶ τὸ πολὺ γίνεσθαί τινα ἁμαρτίαν παρὰ τὸ μὴ διορίζεσθαι πῶς καὶ τίνων τίθησι τὸ ἴδιον. ἅπαντες γὰρ ἐπιχειροῦσιν ἀποδιδόναι τὸ ἴδιον ἢ τὸ φύσει ὑπάρχον*, &c.

He then proceeds to enumerate the ten diversities of Proprium which I have given in the text: this paragraph also is very obscure.

I cannot but repeat the remark here (which I made *supra* p. 318), that the contents of this paragraph also belong to the former investigation (*viz.*, How ought the Proprium to be set out and described?) rather than to the present investigation (*viz.*, Whether the alleged Proprium is really a Proprium of the assigned subject or not?).

[d] Topic. V. v. p. 134, a. 32: *ἢ ἁπλῶς, καθάπερ ζῴου τὸ ζῆν*. Is not *τὸ ξῆν* included in the *essentia* (*τὸ τί ἦν εἶναι*) of *ζῷον*? If so, how can it be admitted as a *proprium* thereof?

e. As belonging to the subject by reason of some primary intervening aspect or attribute thereof. *E.g.*, Prudence is a proprium of the soul, looked at *quatenus* reasonable or intellectual.

f. As belonging to that primary attribute or special aspect, logically distinguished and named separately from the subject. *E.g.*, Prudence is a proprium of the *logistikon* or *rationale.*

g. As belonging to the subject viewed as possessing or holding in possession. *E.g.*, The scientific man possesses that acquired mental habit which renders him incapable of having his convictions farther altered by discussion.

h. As belonging to some possession held by a possessing person. *E.g.*, Science is unalterable by discussion; where science, a possession of the scientific man, is assigned as subject of the proprium, unalterable by discussion.

i. As belonging to a subject which is partaken or held in participation by another subject lying behind. *E.g.*, Sensible perception is a proprium of the genus animal which genus is partaken or held in participation by this individual man, that individual horse, &c.; whence it may be predicated not only of animal but also of man, as thus participant.

k. As belonging to the ultimate subject partaking. *E.g.*, To live is a proprium of this particular man or horse, participant in the genus animal, in the way just indicated.

Now each of these varieties of the Proprium is liable to its own mode of erroneous setting out or description. Thus the corresponding errors will be:—[a]

a. Not to add the qualifying words *by nature.*

b. Not to state the proprium as simply belonging, when it does only belong to the subject now, and may presently cease to belong.

c. Not to state the proprium as belonging *to the species.* If he omits these words, he may be told that it belongs to one variety alone among the species (*e.g.*, should it be a superlative) and not to others: perhaps it may

[a] Topic. V. v. p. 134, b. 5-p. 135, a. 5. For the fourth head (*d.*), no corresponding error is assigned. It should be noted that the illustration given of it, and remarked upon at the foot of the last page, is repeated for the concluding head of the list.

belong to some conspicuously, and to others faintly. Or perhaps, if he does add the express words—*to the species*, he may err, inasmuch as there exists no real species properly so called.

e. f. Not to distinguish whether he means to affirm it of B by reason of A, or of A directly: he will lay himself open to the objection that his proprium, and the subject term of which he declares it to be a proprium, are not co-extensive in predication.

g. h. Not to distinguish whether he intends as subject the person possessing, or the possession. If he leaves this undetermined, the objector may attack him on one ground or the other.

i. k. Not to distinguish whether he means as subject the partaker, or the genus which is partaken. Here too the objector will have ground for attack either from one side or from the other.

In case the respondent should enunciate his proprium in any one of the above defective ways, you will thus know where to find objections against him. But, if you undertake yourself to enunciate a proprium, you will avoid laying yourself open to the objections, by discriminating under which of these heads you intend to affirm it.[a]

12. Again, the respondent may perhaps affirm as proprium a predicate really identical with the subject, though under a different name. Thus, he may declare *τὸ πρέπον* to be a proprium *τοῦ καλοῦ*: you may then refute him by showing that *πρέπον* is identical with *καλόν*. If he is on the negative side, denying A to be a proprium of B on the ground that A is identical with B, you will make out the affirmative against him by showing that A is not identical with B, but only co-extensive and reciprocating therewith. Thus, you may show that animated substance is not identical with animal, but a proprium of animal.[b]

13. Where the subject is *homœomeric*, the respondent may declare as proprium of the whole what cannot be truly affirmed as proprium of a part separately; or he may declare as proprium of a part separately what cannot be truly declared as proprium of the whole. In either case, you have a plausible argument for refuting him; but your refutation will not be always conclusive,

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[a] Topic. V. v. p. 135, a. 5: *ἄλλου μὲν οὖν οὕτως ἀποδιδόντος τὸ ἴδιον ἐπιχειρητέον, αὐτῷ δ' οὐ δοτέον ἐστὶ ταύτην τὴν ἔνστασιν, ἀλλ' εὐθὺς τιθέμενον τὸ ἴδιον διοριστέον ὃν τρόπον τίθησι τὸ ἴδιον.*

[b] Ibid. a. 11-19.

because there are various cases in which what is true of each homœomeric part is not true of the whole; and *vice versâ*. If your position in the debate is affirmative, you will select as illustration some case in which what is by nature true of the whole is also true of each separate part: *e.g.*, The earth as a whole, and each of its parts, tend by nature downwards. This is a proprium of the earth.[a]

14. Respecting *Opposita*, there are different *loci* for different varieties.

a. Contraria.—Suppose the respondent to affirm A as proprium of B: you will examine whether the contrary of A is proprium of the contrary of B. If it be not, then neither is A proprium of B. Thus, if best is not a proprium of justice, neither can worst be a proprium of injustice. If the respondent is on the negative side, you may prove the affirmative against him by showing that the contrary of the alleged proprium is a proprium of the contrary of the alleged subject.[b]

b. Relata.—Suppose the respondent to affirm a *relatum* A as proprium of a *relatum* B, you may refute him by showing that the correlate of A is not proprium of the correlate of B. Suppose him to deny the same, you will refute him by proving the affirmative between correlate and correlate.[c]

c. Habitus et Privatio.—Suppose the respondent to affirm an attribute of the *habitus* B, as proprium thereof: you may refute him by showing that the corresponding attribute of the *privatio* correlating with *habitus* B, is not proprium of that *privatio*. Suppose him to take the negative side, you will refute him by proving the affirmative of this latter proposition.[d]

15. Respecting Contradictory Propositions (affirmation and negation of the same), more than one mode of dealing may be stated. Wherever the affirmation is a proprium of the subject, the negation cannot also be a proprium thereof; and *vice versâ*. If the affirmative predicate be not a proprium of the affirmative subject, neither can the negative predicate be proprium of the negative subject; and *vice versâ*. If the affirmative predicate be proprium of the affirmative subject, the negative predicate will also be proprium of the negative subject. The same predicate cannot be proprium both of the affirmative subject and of the negative subject.[e]

16. Respecting two or more Contra-Specific Terms under the

[a] Topic. V. v. p. 135, a. 20-b. 6.
[b] Ibid. vi. p. 135, b. 7-16.
[c] Ibid. vi. p. 135, b. 17-26.
[d] Ibid. b. 27-p. 136, a. 4.
[e] Ibid. p. 136, a. 5-b. 2. This *locus* is declared by Aristotle to furnish arguments for refutation only, and not for proof.

same genus and exhausting the whole genus :—Suppose A and B contra-specific terms used as subjects; C and D contra-specific terms used as predicates. If C be not a proprium of A, neither will D be a proprium of B; thus, if perceivable (αἰσθητόν) is not a proprium of any other species (except gods) included under the genus animal, neither will intelligible (νοητόν) be proprium of a god. Again, if C be a proprium of A, D also will be a proprium of B. Thus, if it be a proprium of prudence to be by its own nature the excellence of the rational or calculating soul (λογιστικοῦ), we must also affirm as proprium of temperance that it is the excellence of the appetitive soul (ἐπιθυμητικοῦ).[a]

17. Respecting Cases or Inflections, either of the subject B, or the predicate A :—If the case or inflection of the predicate be not a proprium of the corresponding case or inflection of the subject, neither will the predicate be proprium of the subject. If the case or inflection of the predicate be a proprium of the corresponding case or inflection of the subject, then the predicate itself will also be proprium of the subject. *Pulchrè* is not proprium of *justè*; therefore, *pulchrum* is not proprium of *justum*.

This *locus* will be found available in combination with the preceding *locus* bearing on *Opposita*. Not only *opposita* themselves, but also the cases and inflections of *opposita*, may be adduced as arguments, following the rules above laid down.[b]

18. Analogous cases or propositions: — If the respondent affirms A as proprium of B, you have an argument against him by showing that something analogous to A is not proprium of a subject analogous to B. Thus, the builder, in relation to house-making, is analogous to the physician, in relation to health-making; now health-making is not the proprium of the physician, and therefore neither is house-making the proprium of the builder. If the respondent has advanced a negative, you will apply this same *locus* in the affirmative against him: *e.g.*, as it is the proprium of the gymnast to impart a good habit of body, so it is the proprium of the physician to impart health.[c]

19. *Esse*, and *Generari* or *Fieri* :—If A considered as *Ens* is not the proprium of B considered as *Ens*, then neither will A considered as *Fiens* be the proprium of B considered as *Fiens*. *Vice*

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[a] Topic. V. vi. p. 136, b. 3-13. "Il faut supposer ici quatre termes, qui sont deux à deux les membres d'une division : si le premier n'est pas le propre du troisième, le second ne le sera pas du quatrième ; et réciproquement pour la négation d'abord. Les quatre termes sont ici : sensible, intelligible, membres d'une même division : mortel, divinité, membres d'une autre' division." (Barthélemy St. Hilaire, p. 197.)

[b] Topica, V. vii. p. 136, b. 15-32.

[c] Ibid. b. 33-p. 137, a. 7.

versâ, on the affirmative side: if the former of these two be the fact, you may argue that the latter is the fact also.[a]

20. Comparison with the Idea:—If the respondent sets up A as proprium of B, you will turn your mind to the Idea of B, and note whether A is proprium of this Idea, in the same sense and under the same aspect as it is affirmed to be proprium of B. If it be not so, you will have an argument in refutation of the respondent. Thus, if he maintains that it is a proprium of man to be at rest, you will argue that this cannot be so, because to be at rest is not the proprium of the Self-man (*αὐτοάνθρωπος*) *quatenus* man, but *quatenus* Idea. *Vice versâ*, you will have an affirmative argument, if you can show that it is the proprium of the Idea. Thus, since it is a proprium of the self-animal *quatenus* animal to be composed of soul and body, you may infer that to be composed of soul and body is really a proprium of animal.[b]

21. *Locus* from More and Less:—Suppose the respondent to affirm A as proprium of B: you will have an argument against him, if you can show that what is more A is not proprium of that which is more B. Thus, if to be more coloured is not proprium of that which is more body, neither is to be less coloured proprium of that which is less body; nor is to be coloured proprium of body simply. *Vice versâ*, if you can show that what is more A is proprium of what is more B, you will have an affirmative argument to establish that A is proprium of B. Thus, to perceive more is proprium of that which is more living. Hence, to to perceive simply is proprium of that which is living simply; also, to perceive most, least, or less, is proprium of that which is most, least, or less living, respectively.[c]

If you can show that A simply is not proprium of B simply, you have an argument to establish that what is more or less A is not proprium of that which is more or less B. If, on the other hand, you show the affirmative of the first, this will be an argument sustaining the affirmative of the last.[d] Perhaps you can show that what is more A is not proprium of what is more B: this will be an argument to show that A is not proprium of B. Thus, to perceive is more proprium of animal than to know is proprium of man; but to perceive is not proprium of animal; therefore, to know is not proprium of man. Or again, if you can show that what is less A is proprium of what is less B, this will form an argument to show that A is proprium of B. Thus, natural mansuetude is less proprium of man than life is pro-

[a] Topic. V. vii. p. 137. a. 21-b. 2. [b] Ibid. b. 3-13. [c] Ibid. viii. p. 137, b. 14-27. [d] Ibid. b. 28-p. 138, a. 3.

prium of animal; but natural mansuetude *is* proprium of man: therefore life is proprium of animal.[a] Farther, if you can show that A is more a proprium of C than it is a proprium of B, yet nevertheless that it is *not* a proprium of C you may thence argue that A is not a proprium of B. Thus, to be coloured is more a proprium of superficies than it is a proprium of body; yet it is not a proprium of superficies; therefore, it is *not* a proprium of body. This last variety of the *locus* of More and Less (Aristotle remarks) affords no corresponding affirmative plea;[b] for the same predicate cannot be a proprium of many subjects. If A be really a proprium of superficies, it cannot be also proprium of body. Lastly, you may perhaps be able to show that C is more a proprium of B than A is a proprium of B; yet, if C is *not* a proprium of B, you will infer negatively that neither is A proprium of B. Thus, to be perceivable is more proprium of animal, than to be divisible is proprium of animal; yet to be perceivable is *not* proprium of animal, and, therefore, neither is to be divisible proprium of animal. You may invert this argument for the affirmative, if you can show that C is less a proprium of B than A is a proprium of B, yet still that C *is* a proprium of B; hence you will infer, *à fortiori*, that A is a proprium thereof. *E.g.*, If to perceive is less a proprium of animal than to live is a proprium thereof, yet to perceive *is* a proprium of animal; then, to live is so likewise.[c]

22. *Locus* from Equal Relation:—Arguments both negative and affirmative may in like manner be obtained by comparing different things which are (not more or less propria, but) alike or equally propria of some other subject. If A is as much a proprium of B as C is proprium of D, while yet A is *not* a proprium of B, you may hence infer that C is not a proprium of D. If, under this hypothesis, A *is* a proprium of B, you may infer affirmatively that C is a proprium of D.[d] Or, if A and C be, alike and equally, propria of the same subject B, then, if you show that A is not proprium thereof, you will infer negatively that C is not so; if you show that A *is* proprium of B, you will infer affirmatively that C is so likewise. Or, thirdly, if A be, alike and equally, a proprium of B and of E, then, if you can show that A is *not* a proprium of E, you may infer negatively that it is *not* a proprium of B. Here, however, the counter-inference affirmatively is not allowable; for the same proprium cannot belong as proprium to two distinct subjects, as was stated before.[e]

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[a] Topica, V. viii. p. 138, a. 4-12.

[b] Ibid. p. 138, a. 13-20: κατασκευάζοντι δὲ ὁ τόπος οὗτος οὐκ ἔστι χρήσιμος· ἀδύνατον γὰρ ἐστι ταὐτὸ πλειόνων ἴδιον εἶναι.

[c] Ibid. a. 21-30.

[d] Ibid. a. 30-b. 15.

[e] Ibid. b. 16-22.

23. *Locus* from Potentiality—No potentiality whatever can belong to *Non-Ens*. Accordingly, if A, the proprium affirmed of a subject B, is a potentiality, this must imply some real *Ens* in which it inheres, and which is correlate to the subject. But, if in the specification of the proprium no allusion is made to such correlate, you will attack it as a bad proprium—as a potentiality inhering in *Non-Ens* or nothing. *E.g.*, if the case be, It is a proprium of air to be respirable, you will refute this by pointing out that this is true only when there exist animals in whom the potentiality of breathing resides; that no mention is made by the respondent of this correlate or of any other correlate; in other words, that, so far as the specification is concerned, the correlate is passed over as *Non-Ens* or a non-entity. Therefore the proprium is not a good proprium.[a] Again, suppose the affirmation to be, It is a proprium of *Ens* to be capable of doing or suffering something; this will be defensible because it is only when the subject *is Ens*, that it is declared to have such proprium.[b]

24. *Locus* from the Superlative:—Suppose the affirmation to be, It is a proprium of fire to be the lightest of all bodies: this you may refute by showing that, if fire ceased to exist, there would still be some other body the lightest of all bodies. Therefore the proprium may still be predicated of something else, when its alleged subject has ceased to exist. The proprium and its subject are not reciprocating and co-extensive; therefore it is not a true proprium.[c]

VI.

We now enter on the Sixth Book, containing the *Loci* bearing on Definition. In debates respecting Definition, there are five points on any of which the attack and defence may turn:—[d]

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[a] Topica, V. ix. p. 138, b. 27-37. *οἷον ἐπεὶ ὁ εἴπας ἀέρος ἴδιον τὸ ἀναπνευστὸν τῇ δυνάμει μὲν ἀπέδωκε τὸ ἴδιον (τὸ γὰρ τοιοῦτον ἴδιον οἷον ἀναπνεῖσθαι ἀναπνευστόν ἐστιν), ἀποδέδωκε δὲ καὶ πρὸς τὸ μὴ ὂν τὸ ἴδιον· καὶ γὰρ μὴ ὄντος ζῴου, οἷον ἀναπνεῖν πέφυκε τὸνος ρα, ἐνδέχεται ἀέρα εἶναι· οὐ μέντοι μὴ ὄντ ζῴου δυνατόν ἐστιν ἀναπνεῖν· ὥστ' οὐδ' ἀέρος ἔσται ἴδιον τὸ τοιοῦτον οἷον ἀναπνεῖσθαι, τότε ὅτε ζῷον οὐκ ἔσται τοιοῦτον οἷον ἀναπνεῖν. οὐκ ἂν οὐκ εἴη ἀέρος ἴδιον τὸ ἀναπνευστόν.*

Respirability (the proprium here discussed) being a relative term, Aristotle demands that the correlate thereof shall be named and included in setting out the proprium. If this be not done, a refutative argument may be drawn from such omission—that the respondent was not aware of the relativity. We may remark here that this objection is founded on a bad or incomplete specification of the proprium in question: it is not an objection against the reality of that proprium itself, if carefully described. The objection belongs to that class which Aristotle had discussed before, at the commencement of Book V.

[b] Ibid. p. 139, a. 1-8.

[c] Ibid. a. 9-20.

[d] Ibid. VI. i. p. 139, a. 24-35: *τῆς δὲ περὶ τοὺς ὅρους πραγματείας μέρη πέντε ἐστίν.*

1. That which the definer enunciates as a definition may not be true at all, even as a predicate of the definiend or subject to be defined; or at least not true of every thing that bears the name of the subject.
2. The definiend may have been included in a genus, but not in that genus to which it rightly and specially belongs.
3. The definition given may not be specially appropriate to the definiend (*i.e.*, it may include, not only that but, other matters besides).
4. The definition, though unobjectionable on any of the above three grounds, may nevertheless not declare the Essence of the definiend.
5. Lastly, the definition may be good in substance, but badly expressed or set out.

As to the first of these five heads, the *Loci* bearing thereupon have already been enumerated in the Third Book, on Accident: in accidental predications the question raised is always about the truth or falsehood of the predication.[a] As to the second and third of the five heads, these have been dealt with in the Fourth and Fifth Books, enumerating the *Loci* on Genus and Proprium.[b]

There remain the fourth and fifth heads, on which we are about to enter: (1) Whether the definition is well expressed or set out (the fifth head); (2) Whether it has any right to be called a definition at all, *i.e.*, whether it declares the Essence of the subject (the fourth).[c] The fifth is taken first, because to do a thing well is always more difficult than to do it simply, and is therefore likely to afford greater opening for argumentative attack.

The definition, while unobjectionable in substance, may be badly set out in two ways. First, it may be indistinct in terms —not plain nor clear. Next, it may be redundant: the terms may include more than is required for the definition. Under each of these defects of expression several *loci* may be indicated.[d]

1. Indistinctness may arise from the employment of equivocal terms in the definition. Or it may arise from the term to be defined being itself equivocal; while the definer, taking no notice of such equivocation, has tried to comprehend all its senses under one and the same definition. You may attack him either by denying that the definition as given covers all the different meanings of the definiend; or you may yourself distinguish (which the definer has omitted to do) these different meanings,

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[a] Topic. VI. i. p. 139, a. 36. [b] Ibid. b. 3. [c] Ibid. b. 6.
[d] Ibid. b. 12-18.

and show that none of them or few of them are covered by the definition.[a]

2. Indistinctness may arise from defining by means of a metaphor; but Aristotle treats you as a caviller if you impugn this metaphor as though it were *proprio sensu*.[b] He declares it to be wrong, but he seems to think that you ought to object to it at once *as a metaphor*, without troubling yourself to prove it inappropriate.

3. Indistinctness will arise if the terms of the definition are rare or far-fetched or founded upon some fact very little known.[c] Definitions given by Plato are cited to illustrate this.

4. Indistinctness arises from the employment of a poetical image, which is even worse than a professed metaphor: as where law is defined to be—a measure or image of things by nature just.[d]

5. The definition is indistinct, if it does not, while making known the definiend, make clear at the same time its contrary.[e]

6. The definition is also indistinct if it does not, when enunciated, make known what the definiend is, without requiring that the definiend itself shall be expressly enunciated. The definition by itself ought to suggest at once the name of the definiend. Otherwise, the definer is no better than those archaic painters, who, when painting a dog or a horse, were compelled to write the name alongside in order that the animal might be recognized.[f]

Such are the *Loci* regarding Indistinctness in the setting out of the definition. The second defect is Redundancy.

1. Redundancy will arise if the terms of the definition include either all things absolutely, or all things contained in the same genus as the definiend; since the definition ought to consist of a generic term to discriminate the definiend from all

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[a] Topic. VI. ii. p. 139, b. 19. *ὁμοίως δὲ καὶ εἰ τοῦ ὁριζομένου πλεοναχῶς λεγομένου μὴ διελὼν εἶπεν· ἄδηλον γὰρ ὁποτέρου τὸν ὅρον ἀποδέδωκεν, ἐνδέχεταί τε συκοφαντεῖν ὡς οὐκ ἐφαρμόττοντος τοῦ λόγου ἐπὶ πάντα ὧν τὸν ὁρισμὸν ἀποδέδωκεν.*

The term *συκοφαντεῖν* surprises us here, because the point under consideration is indicated by Aristotle himself as a real mistake; accordingly he ought not to characterize the procedure whereby such mistake is exposed as *mere cavil*—*συκοφαντία.* Alexander, in the Scholia (p. 287, b. 1, Br.), says that Aristotle intends to apply the term *συκοφαντεῖν* to the respondent who advances this bad definition, not to the assailant who impeaches it. But the text of Aristotle does not harmonize with this interpretation.

[b] Ibid. b. 32: *ἐνδέχεται δὲ καὶ τὴν μεταφορὰν εἰπόντα συκοφαντεῖν ὡς κυρίως εἰρηκότα.* Here again we have the word *συκοφαντεῖν* to designate what seems a legitimate mode of argumentative attack.

[c] Ibid. p. 140, a. 3: *πᾶν γὰρ ἀσαφὲς τὸ μὴ εἰωθός.*

[d] Ibid. a. 6-17. *χεῖρον ὁποιουοῦν τῶν κατὰ μεταφορὰν λεγομένων.*

[e] Ibid. a. 18.

[f] Ibid. a. 20. This last condition is a high measure of perfection to exact from a definition. Assuredly Aristotle's own definitions often fall lamentably short of it.

extra-generic things, and a differential term to discriminate it from other things within the same genus. A definition of the kind mentioned will be useless through redundancy.[a] It will also be open to the like objection, if it includes what is merely a proprium of the definiend, over and above the essential attributes; or, indeed, if it includes any thing else except what is required for clearly bringing out the definiend.[b] It will be still worse, if it comprises any attribute not belonging to all individuals of the species; for then it will not even be a proprium or a reciprocating predication.[c]

2. Repetition is another fault sometimes committed. The same attribute may be predicated twice over. Or a particular and narrow attribute may be subjoined, in addition to a more general and comprehensive attribute in which it has already been included.[d]

So much for the faults which belong to the manner of expressing the definition tendered. Next, as bearing on the matter and substance of the definition, the following *loci* are distinguishable.

1. The first of these *loci* is, if the matter of the definition is not *prius* and *notius* as compared with the definiend. It is one of the canons of Definition, the purpose of which is to impart knowledge of the definiend, to introduce nothing except what is prior by nature and better known than the latter. The essence of each definiend—the being what it is—is one and only one. If a definition be given, other than that by means of what is *prius* and *notius*, it would follow that the same definiend might have two distinct essences; which is impossible. Accordingly, any proposition tendered as a definition but enunciating what is not prior by nature and better known than the definiend sins against this canon, and is to be held as no true definition at all.[e]

The *locus* here indicated by this general feature is one, but it includes a number of varieties.[f] More known, or less known, it should first be observed, has two distinct meanings: either more or less known *absolutely* (*by nature*); or more or less known *to us*. Absolutely, or by nature, the point is better known than

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[a] Topic. VI. iii. p. 140, a. 23-32. Alexander, however, remarks very pertinently, that the defects of such a definition are defects of substance rather than of expression. Aristotle has passed unconsciously from the latter to the former: ἐν μὲν τῇ πρώτῃ τῶν ἐφόδων δόξειεν ἂν ὁ Ἀριστοτέλης μετάγειν εἰς τὰς πραγματικὰς ἐξετάσεις (Schol. p. 287, b. 27, Br.).

[b] Ibid. a. 37: ἁπλῶς δ' εἰπεῖν, ἅπαν περίεργον οὗ ἀφαιρεθέντος τὸ λοιπὸν δῆλον ποιεῖ τὸ ὁριζόμενον.

[c] Ibid. b. 16.

[d] Ibid. b. 27-p. 141, a. 22.

[e] Ibid. iv. p. 141, a. 24-b. 2.

[f] Ibid. v. p. 142, b. 20.

the line; the line, than the superficies; the superficies, than the solid; the *prius*, than the *posterius*. But *to us* the reverse is true. The solid, as object of sensible perception, is earlier known and more known than the superficies; the superficies, than the line; the line, than the point; the *posterius*, than the *prius*. *To us* means to the bulk of mankind: *absolutely* or *by nature* refers to the instructed, superior, teaching and expository, intellects.[a] There may be some cases in which the *notius nobis* coincides and is identical with the *notius naturâ*;[b] but, as a rule, the two are distinct, and the one is the inverse of the other. A genuine and perfect definition is one which enunciates the essence of the Species through Genus and Differentiæ, which are both of them absolutely prior and more knowable than the Species, since, if they be supposed non-existent, the Species is nowhere to be found. No man can know the Species without knowing its Genus and Differentiæ; but you may know the Genus and Differentiæ without knowing the Species; hence the Species is more unknowable than they are.[c] This is the true scientific definition; but there are persons incapable of acquiring knowledge by means of it. To these persons, an imperfect explanation or quasi-definition must be given, by means of matters knowable to them.[d] Those, however, who regard such imperfect explanations as true definitions, must be reminded that, upon that hypothesis, we should be compelled to admit many distinct definitions of the same definiend. For individuals differ from each other in respect to what is more knowable: what is more so to one man is not more so to another. Indeed the same man differs from himself on this point at different periods: to the early and untrained mind objects of sensible perception are the most knowable; but, when a man has been improved by training and instruction, the case is reversed, and the objects of intellect become the most familiar to his mind.[e]

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[a] Topic. VI. iv. p. 141, b. 3-14.

[b] Ibid. b. 22.

[c] Ibid. b. 25.

[d] Ibid. b. 16.

[e] Ibid. b. 34.

The general mental fact here noticed by Aristotle may be seen philosophically stated and explained in the volume of Professor Bain on the Emotions and the Will. (Chapter on Consciousness, sect. 19, p. 581, 2nd ed.)

"A sensation is, under any view of it, a conscious element of the mind. As pleasure or pain, we are conscious in one way; as discrimination, we are conscious in the other way, namely, in a mode of neutral excitement.—But this is not all. After much contact with the sensible world, a new situation arises, and a new variety of the consciousness, which stands in need of some explanation. When a child experiences for the first time the sensation of scarlet, there is nothing but the sensibility of a new impression more or less intense. . . . It is very difficult for us to realize or define this original shock, our position in mature life being totally altered. It is the rarest thing for us *then* to come under a radically new impression; and we can only, by help of imperfect analogies, form an approximate conception of what happens at the first

To define properly, therefore, we must enunciate, not the *notiora nobis* but, the *notiora naturâ* or *simpliciter;* understanding by this last phrase, not what is more knowable to all actual men but, what is more knowable to men of well-trained and well-constituted intellect; just as, when we speak of the wholesome, we mean what is wholesome to the well-constituted body.[a] These conditions of Definition you must thoroughly master, and apply to each debate as the occasion may require. Your task in refuting an alleged definition will be the easiest in those cases where it conforms to neither of the above conditions; that is, when it enunciates neither what is *notius naturâ* nor what is *notius nobis.*[b]

The canon being, That what is *posterius* must be defined by its *prius,*—the definer may sin against this in defining the *prius* by its *posterius; e.g.,* if he defines the stationary and the determinate by means of the moveable and the variable.[c] Also, when his definition is neither *prius,* nor *posterius,* but of equal position with the definiend, he is at fault. This may happen (1) when he defines by an Opposite (for, according to some, the science of Opposites is one and the same, and it is impossible that either one of a pair can be absolutely more knowable than

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shock of a discriminative sensation. The process of engraining these impressions on the mind after repetition, gives to subsequent sensations quite a different character as compared with the first. The second shock of scarlet, if it stood alone, would doubtless resemble the preceding; but such is the nature of the mind, that the new shock will not stand alone, but restores the notion or idea or trace that survived the former. The sensation is no longer the primitive stroke of surprise, but a coalition of a present shock with all that remains of the previous occasions. Hence it may properly be said, when we see, or hear, or touch, or move, that what comes before us is really contributed more by the mind itself than by the object present. The consciousness is complicated by three concurring elements—the new shock, the flash of agreement with the sum total of the past, and the feeling of that past as revived in the present. In truth, the new sensation is apt to be entirely overridden by the old; and, in place of discriminating by virtue of our susceptibility to what is characteristic in it, our discrimination follows another course. For example, if I have before me two shades of colour, instead of feeling the difference exactly as I am struck at the moment, my judgment resorts to the round-about process of first identifying each with some reiterated series of past impressions; and, having two sum-totals in my mind, the difference that I feel is between those totals. If I made a mistake, it may be attributed not so much to a wrong act of discrimination, as to a wrong act of identification.—All sensations, therefore, after the first of each kind, involve a flash of recovery from the past, which is what really determines their character. The present shock is simply made use of as a means of reviving some one past in preference to all others; the new impression of scarlet is in itself almost insignificant, serving only as the medium of resuscitating the cerebral condition resulting from the united force of all the previous scarlets.—Sensation thus calls into operation the two great intellectual laws, in addition to the primitive sensibility of difference.—When we consider ourselves as performing the most ordinary act of seeing or hearing, we are bringing into play those very functions of the intellect that make its development and its glory in its highest manifestations."

[a] Topic. VI. iv. p. 142, a. 10.

[b] Ibid. a. 12; also, a. 32.

[c] Ibid. a. 20: *πρότερον γὰρ τὸ μένον καὶ τὸ ὡρισμένον τοῦ ἀορίστου καὶ ἐν κινήσει ὄντος.*

the other; though it is true that no relative can be understood or explained without the knowledge of its correlative, *e.g.*, double and half); or (2) when he includes the definiend itself in his definition, either under its proper name or any other name;[a] or (3) when he defines by means of a contra-specific to the definiend—by something of equal specific rank or position, which is therefore *simul naturâ* therewith (*e.g.*, Odd is that which is greater than even by unity); or (4) when he defines by something specifically subordinate (*e.g.*, An even number is that which may be bisected, where bisected means divisible by two, itself one among the even numbers[b]).

2. The second *locus* (after that bearing on the *Prius et Notius*) of argument for impunging a definition is, where it does not enunciate the genus in which the definiend is really included. The mention of the genus, as enunciating the fundamental essence of the definiend, ought to stand first in the definition. If your opponent defines body—that which has three dimensions, or man—that which knows how to count, you attack him by asking, What is it that has three dimensions? What is it that knows how to count? No genus has been assigned.[c]

3. A third *locus* is, where the definiend is a complex whole having reference to several distinct facts or phenomena, while the definition indicates only one of them. Thus, if grammar be defined—the knowing how to write from dictation, you will object that it is just as much—the knowing how to read. The definition is incomplete unless it includes both.[d]

4. A fourth *locus* is, where the definiend admits both of a better and a worse construction, and where the definition enunciates only the worse. You may impugn it, on the ground that every cognition and every power must be understood as tending to its best results.[e]

5. A fifth *locus* is, where the definiend is enunciated as ranking, not in the lowest and nearest species to which it belongs but, in some higher and more distinct genus. Here the real essence will not be declared, and the definition will thus be incomplete; unless indeed it includes, along with the highest genus, the superadded mention of all the differentiæ descending down to the lowest species. It will then be complete, because it will include, in circumlocutory phrase, all that would be declared by enunciating the specific name.[f]

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[a] Topic. VI. iv. p. 142, a. 22-b. 6.

[b] Ibid. b. 7-19: πάλιν, εἰ τῷ ἀντιδιῃρημένῳ τὸ ἀντιδιῃρημένον ὥρισται—ὁμοίως δὲ καὶ εἰ διὰ τῶν ὑποκάτω τὸ ἐπάνω ὥρισται.

[c] Ibid. v. p. 142, b. 22-29.

[d] Ibid. b. 30.

[e] Ibid. p. 143, a. 9.

[f] Ibid. a. 15-28.

6. Assuming the genus to be truly declared in the definition, you will examine whether the differentiæ enunciated are differentiæ at all? whether they really belong to the definiend? what is it which they serve to contrast with and exclude,—since, if there be nothing such, they cannot be truly differentiæ? whether the differential term and its counter-differential apply to and cover the whole genus? whether, granting the differentia to be real, it be such, when taken along with the genus, as to constitute a true species, and whether its counter-differentia be such also? This is a *locus* furnishing many possibilities of impugning the definition.[a]

7. Perhaps the definition may enunciate a differentia which is merely negative; *e.g.*, A line is length without breadth. If you are debating with a respondent who holds the (Platonic) doctrine of Ideas, and who considers each Idea or genus to be something numerically one, distinct from all its participants, you will find here a *locus* for attacking them.[b] He asserts the existence of a Self-long or generical long, a Self-animal or generic animal, each numerically one. Now, upon this hypothesis, since of all long you may predicate either in the affirmative or the negative (*i.e.*, either it is broad or it is not broad), so this alternative may be predicated of the Self-long or generical long; and thus the genus will coincide with, or fall under the definition of, one among its own species. Or, if this be denied, it will follow that the generic long must be both broad and not broad; which is a contradiction still more inadmissible. Accordingly, against one who holds the doctrine of Ideas, declaring the genus to be *unum numero*, the negative differentia will furnish grounds for attack; but not against any other respondent.[c] For there are various cases in which the negative must be employed as a part of the differentia: *e.g.*, in privative terms, blind is one whose nature it is to see but who does not see. And, even when the differentia enunciated is affirmative, it may have for its condivident member only a negative term, *e.g.*, length having-breadth has for its condivident member only the negative, length not-having-breadth.[d]

8. Perhaps the definition may enunciate as a differentia what is really a subordinate species; or what is really the genus itself under another name; or what is not *Quale*, but *Quid*; or what

[a] Topic. VI. vi. p. 143, a. 29-b. 10.

[b] Ibid. b. 11-30.

[c] Ibid. b. 29: ὥστε πρὸς ἐκείνους μόνους χρήσιμος ὁ τόπος, ὅσοι τὸ γένος ἓν ἀριθμῷ φασὶν εἶναι. τοῦτο δὲ ποιοῦσιν οἱ τὰς ἰδέας τιθέμενοι· αὐτὸ γὰρ μῆκος καὶ αὐτὸ ζῷον γένος φασὶν εἶναι.

[d] Ibid. b. 33.

belongs to the definiend as an accident only. Each of these is a *locus* for arguments against the definition.[a]

9. Perhaps also, in the definition given, the differentia or the species may be found predicable of the entire genus; or the genus may be found predicable of the differentia itself, and not of objects under it; or the species (sometimes even one of its sub-species) may be found predicable of the differentia; or perhaps the differentia may not be a *prius* as regards the species (which it ought to be, while it is a *posterius* as regards the genus). Arguments against the definition may be drawn from any one of these *loci*.[b]

10. Recollect that the same differentia cannot belong to two distinct genera neither of which comprehends the other, unless both are comprehended under some higher genus. Examine whether this is observed in the definition tendered to you.[c]

11. No genuine differentia can be derived either from the Category *Ubi* or from the Category *Passio;* for neither of them furnishes characteristics essential to the subject. All *Passio* when intensified to a certain degree destroys the essence of the subject and removes it from its own appropriate species; but the differentia is inseparable from its subject; accordingly, nothing by virtue of which the subject is called ἀλλοῖον can be a true differentia. If the definition sins against this rule, it will be open to question.[d]

12. If the subject be relative, its true differentia ought to be relative also; thus, science or cognition is a *relatum*, and accordingly its three differentiæ—theoretical, practical, constructive—are all *relata* also.[e] The definition must conform to this; and it must also, in cases where the relative subject has more than one correlate, declare that correlate which is the ordinary and natural one, not any other which is rare and realized only on occasion.[f] You must watch to see whether this condition is observed; and also whether the correlative enunciated in the definition is the one strictly proximate. Thus, if the definition given of prudence be, It is an excellence of man or an excellence of the soul, this will not be a good definition. It ought to be—an excellence of the rational department of the soul; for it is

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[a] Topica, VI. vi. p. 144, a. 5-27.

[b] Ibid. a. 28-b. 11.

[c] Ibid. b. 12.

[d] Ibid. b. 31-p. 145, a. 12: ὁρᾶν δὲ καὶ εἰ τὸ ἔν τινι διαφορὰν ἀποδέδωκεν οὐσίας· οὐ δοκεῖ γὰρ διαφέρειν οὐσία οὐσίας τῷ που εἶναι.—πάλιν εἰ τὸ πάθος διαφορὰν ἀποδέδωκεν.—ἁπλῶς δ' εἰπεῖν, καθ' ὅσα ἀλλοιοῦται τὸ ἔχον, οὐδὲν τούτων διαφορὰ ἐκείνου·—ἁπλῶς γὰρ οὐκ ἀλλοιούμεθα κατὰ τὰς διαφοράς.

[e] Ibid. a. 13.

[f] Ibid. a. 19-26.

through and by reason of this department that both man and soul are denominated prudent.[a]

13. When the definiend is given as an affection or lasting condition of some subject, you must examine whether it really resides or can reside (as by nature it ought to do) in the subject to which it is referred in the definition. If it cannot, the definition is untenable; and this mistake is sometimes made, the producing conditions of a phenomenon being confounded with the phenomenon itself, or *vice versâ*.[b] Thus, some persons have defined sleep—incapacity of sensible perception; doubt—equality of contrary reasonings; pain—breach of continuity violently made in parts of the organism which naturally grow together. Now sleep does not reside in perception, nor doubt in reasonings. Sleep is that which produces or occasions incapacity of sensible perception; doubt is a state of mind produced by equality of contrary reasonings.[c] This will be a *locus* for arguing against the definition.

14. Another *locus* is, when the definiend has direct bearing and reference to something different from what is enunciated in the definition. Thus, if the respondent defines justice—a power tending to make equal distribution, you may remark hereupon, that the just man is he who is deliberately resolved to make equal distribution, not he who has the power to do so. If this definition were allowed, the justest man would be he who has the greatest power of so distributing.[d]

15. Again, the definition will be assailable, if the definiend admits graduation of More or Less, while that which is enunciated in the definition does not admit it, or *vice versâ;* also, if both of them admit graduation, but the variations of the two are not corresponding and concomitant. The defining phrase ought to be identical in signification with the term defined.[e] If both of them agree in reference to some common correlate, but one is to this in the relation of more while the other is in the relation of less, the definition is faulty.[f]

16. Again, you will be able to object, if the definition enunciate references to two distinct correlates, severally or alternately: *e.g.*,

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[a] Topic. VI. vi. p. 145, a. 28-32. *πρώτου γὰρ τοῦ λογιστικοῦ ἀρετὴ ἡ φρόνησις· κατὰ γὰρ τοῦτο καὶ ἡ ψυχὴ καὶ ὁ ἄνθρωπος φρονεῖν λέγεται.*

[b] Ibid. b. 11: *τὸ ποιούμενον εἰς το ποιητικὸν ἢ ἀνάπαλιν συμβαίνει τιθέναι τοῖς οὕτως ὁριζομένοις.*

[c] Ibid. a. 33-b. 20.

[d] Ibid. vii. p. 145, b. 34-p. 146, a. 2.

[e] Ibid. p. 146, a. 3-12. *εἴπερ δὴ ταὐτόν ἐστι τὸ κατὰ τὸν λόγον ἀποδοθὲν τῷ πράγματι.*

Here we have a principle of Concomitant Variations analogous to that which is so well unfolded, as one of the Four Inductive Methods, in Mr. J. S. Mill's 'System of Logic.' See Book III. ch. viii. sect. 6.

[f] Topic. VI. vii. p. 146, a. 6-20: *ἔδει δ' ἀμφότερα μᾶλλον τῷ αὐτῷ ὑπάρχειν, εἴπερ ταὐτὰ ἦν*, &c.

The beautiful is that which affords pleasure either through the eye or through the ear; *Ens* is that which is capable either of suffering or acting. You may show that, according to this definition, beautiful and not beautiful, or that *Ens* and *Non-Ens*, will coincide and be predicable of the same subjects.[a]

17. When the definition is tendered, you ought to examine and define its own terms, which, of course, profess to enunciate genus and differentia of the definiend.[b] You will see whether the definitions of those defining terms are in any way inapplicable to the definiend.

18. If the definiend be a *Relatum*, the definition ought to enunciate its true correlate, or the true correlate of the genus to which it belongs. You must examine whether this is done, and whether the correlate enunciated be an ultimate end, as it ought to be (*i.e.*, not merely a means towards something ulterior). If the correlate enunciated is a generation or a process, this will afford you an argument against the definition; for all generation or process is a means towards some ulterior end.[c]

19. The definition ought not to omit any of the differentiæ of the definiend; if any be omitted, the real essence is not declared. Here then is a defect in the definition, which it is your business always to assail on its defective side.[d] Thus, if the definiend be a *relatum* corresponding, not to some correlate absolutely but, to some correlate specially quantified or qualified, the definition ought to enunciate such quantification or qualification; if it does not, it is open to attack.

20. Suppose that the definiend is one of the appetites, relative to an *appetitum* as correlate, a mode of the good or agreeable. You will take notice whether the definition given thereof enunciates the correlate as only an apparent mode of good: if it does not, you have a *locus* for attacking it. But if it does, and if the definer be one who believes in the Platonic Ideas, you may attack him by showing that his definition will not square with that doctrine. For the definition as so given will not suit for the

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[a] Topic. VI. vii. p. 146, a. 21-32.
The definition here given of *Ens* appears in the Sophistes of Plato, p. 247, E. The definition of the beautiful (τὸ καλόν) appears in the Hippias Major of Plato (p. 298, E, seq.), where it is criticized by Sokrates.

[b] Ibid. a. 33-35.

[c] Ibid. viii. p. 146, a. 36-b. 19. This is a subtle distinction. He says that desire must be defined (not desire of *the pleasurable*, but) desire of *pleasure*: we desire *the pleasurable* for the sake of *pleasure*. He admits, however, that there are cases in which the argument will not hold: σχεδὸν γὰρ οἱ πλεῖστοι ἥδεσθαι μᾶλλον βούλονται ἢ πεπαῦσθαι ἡδόμενοι· ὥστε τὸ ἐνεργεῖν μᾶλλον τέλος ἂν ποιοῖντο τοῦ ἐνηργηκέναι.

[d] Ibid. b. 20: πάλιν ἐπ' ἐνίων εἰ μὴ διώρικε τοῦ πόσου, ἢ ποίου, ἢ ποῦ, ἢ κατὰ τὰς ἄλλας διαφοράς,—ἀπολείπων γὰρ διαφορὰν ἡντινοῦν οὐ λέγει τὸ τί ἦν εἶναι· δεῖ δ' ἀεὶ πρὸς τὸ ἐνδεὲς ἐπιχειρεῖν.

ideal or generic appetite—the Self-appetite; which correlates with the ideal or generic good—the Self-good. In this no distinction is admissible of real and apparent: a Self-apparent-good is an absurdity.[a]

21. Again, suppose that the definiend is a habit or disposition. You will examine how far the definition fits as applied to the individual person who has the habit; and how far it fits when taken in comparison with subjects contrary or congeneric. Every such definition, if good, implies in a certain way the definition of the contrary: he who defines cognition furnishes by implication the definition of ignorance.[b]

22. Or suppose the definiend to be a generic *relatum*, and the definition to enunciate its generic correlate. You must call to mind the specific terms comprehended under these two generic terms, and observe whether they fit on to each other respectively. If they do not, the definition is faulty.[c]

23. You will farther examine whether the Opposite of the definition will serve as definition to the Opposite of the definiend, as the definition of half is opposite to the definition of double; thus, if double is that which exceeds equality, half is that which is exceeded by equality. The like is true of Contraries: if the profitable be that which is productive of good, the hurtful will be that which is productive of evil or destructive of good. If, on trying the contraries, you find that this will not hold, the definition originally given will be found unsatisfactory.[d] In defining the privative contrary of any term, a man cannot avoid enunciating in the definition the term of which it is the privative: but he is not allowed to define the term itself by means of its privative. To define equality—that which is contrary to inequality, is improper. You will require him at once to define inequality; and his definition must be—the privation of equality.

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[a] Topic. VI. viii. p. 146, b. 36-p. 147, a. 11. *ἐὰν δὲ καὶ ἀποδῷ τὸ εἰρημένον, ἐπὶ τὰ εἴδη ἀκτέον τὸν τιθέμενον ἰδέας εἶναι· οὐ γάρ ἐστιν ἰδέα φαινομένου οὐδενός, τὸ δ' εἶδος πρὸς τὸ εἶδος δοκεῖ λέγεσθαι, οἷον αὐτὴ ἐπιθυμία αὐτοῦ ἡδέος καὶ αὐτὴ βούλησις αὐτοῦ ἀγαθοῦ. οὐκ ἔσται οὖν φαινομένου ἀγαθοῦ οὐδὲ φαινομένου ἡδέος· ἄτοπον γὰρ τὸ εἶναι αὐτὸ φαινόμενον ἀγαθὸν ἢ ἡδύ.*

Compare Plato, Parmenides, pp. 133-134, where this doctrine that if the *relatum* be an Idea (*sensu Platonico*), the *correlatum* must also be an Idea, is enunciated and pushed to its consequences: *ὅσαι τῶν ἰδεῶν πρὸς ἀλλήλας εἰσὶν αἵ εἰσιν, αὐταὶ πρὸς αὑτὰς τὴν οὐσίαν ἔχουσιν, ἀλλ' οὐ πρὸς τὰ παρ' ἡμῖν εἴτε ὁμοιώματα εἴτε ὅπῃ δή τις αὐτὰ τίθεται*, &c.—*αὐτὴ δὲ δεσποτεία αὐτῆς δουλείας ἐστὶν ὅ ἐστι*, &c. (133, C E.)

[b] Topic. VI. ix. p. 147, a. 12-22.

[c] Ibid. a. 23-28.

[d] Topic. VI. ix. p. 147, a. 29-b. 4.

We must remember that Aristotle, classifying *Relata* as one species under the genus *Opposita*, treats double and half as *Opposita*, i.e. *Relative-Opposita*. I have already said that I think this classification improper, and that *Opposita* ought to be ranked as a species under the genus *Relata*.

Substitute this definition of the term inequality, in place of that term itself, in the above-named definition of equality: and the last definition will then run as follows: Equality is that which is contrary to the privation of equality. Here the definiend is enunciated as a part of the definition of itself; a proof that the original definition—Equality is the contrary of inequality—is itself wrong.[a]

24. When the definiend is a Privative Term, the definition given ought to enunciate that which it is, and that of which it is the privation; also that subject in which it resides naturally and in the first instance. In defining ignorance, the definition must enunciate not privation only, but privation of knowledge; nor will this be sufficient unless it be added that the privation of knowledge is in the rational department of the soul (ἐν τῷ λογιστικῷ). Privation of knowledge in the soul or in the man, will not suffice; because neither of these subjects is that in which the attribute resides in the first instance: the rational department of the soul must be named by itself, as being the primary subject of the attribute. If the definition be wanting in any of these conditions, you will have an argument for impeaching it.[b]

25. A term that is privative in form may sometimes be used in the sense of mere negation, not in that of privation. If this term be defined generally by privation, the definition will not include the merely negative sense, and will therefore be impeachable. The only general explanation attainable is that by pure negation, which is common both to the negative and the privative. Thus, if the respondent defines ignorance—privation of knowledge, such privation can be predicated only of subjects whose nature it is to have knowledge or who might be expected to have it: such privation cannot be predicated of infants, or of inanimate objects like stones. To include these, ignorance must be explained as the mere negation or non-existence of knowledge; the definition thereof by privation is inadequate.[c]

26. If you are debating with one who holds the Platonic doctrine of Ideas, you will note whether any definition that he may give fits not only the definiend itself but also the Idea of the definiend. Thus, Plato in defining animal introduces mor-

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[a] Topic. VI. ix. p. 147, b. 4-25.

[b] Ibid. b. 26-p. 148, a. 2.

[c] Ibid. p. 148, a. 3-9: ὁρᾶν δὲ καὶ εἰ μὴ λεγομένου κατὰ στέρησιν στερήσει ὡρίσατο, οἷον καὶ ἐπὶ τῆς ἀγνοίας δόξειεν ἂν ὑπάρχειν ἡ τοιαύτη ἁμαρτία τοῖς μὴ κατ' ἀπόφασιν τὴν ἄγνοιαν λέγουσιν.

Waitz says in note, p. 503:—"Sensus loci hic est. Peccant qui per privationem ignorantiam definientes non eam ignorantiam definire voluerunt quæ est κατ' ἀπόφασιν, sed eam quæ est κατὰ διάθεσιν." Compare Analyt. Poster. I. xvi. p. 79, b. 23.

tality as a part of his definition;[a] but mortality cannot be predicated of the Idea or generic animal—the Self-animal; therefore, you will have an argument against his definition. In like manner, if any active or passive attribute is brought into his definition, you will object that this cannot apply to the Ideas; which are avowedly impassive and unchangeable.[b]

27. Another *locus* for counter-argument is, where the definiend is Equivocal or Analogous, while one and the same definition is made to apply to all its distinct meanings. Such a definition, pretending to fit all, will in reality fit none; nothing but an univocal term can come under one and the same definition. It is wrong to attempt to define an equivocal term.[c] When its equivocation is not obvious, the respondent will put it forward confidently as univocal; while you as assailant will expose the equivocation. Sometimes, indeed, a respondent may pretend that an univocal word is equivocal, or that an equivocal word is univocal, in the course of the debate. To obviate such misconception, you will do well to come to an agreement with him prior to the debate, or to determine by special antecedent reasonings what terms are univocal or equivocal; for at that early stage, when he does not foresee the consequence of your questions, he is more likely to concede what will facilitate your attack. In the absence of such preliminary agreement, if the respondent, when you have shown that his bad definition will

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[a] Topic. VI. x. p. 148, a. 15: *οἷον ὡς Πλάτων ὁρίζεται τὸ θνητὸν προσάπτων ἐν τοῖς τῶν ζῴων ὁρισμοῖς.*

This may perhaps allude to Plato's manner of speaking of ζῷα in Sophistes, p. 246, E., p. 265, C.; Timæus, p. 69, C.

[b] Topica, VI. x. p. 148, a. 14-22. *ἀπαθεῖς γὰρ καὶ ἀκίνητοι δοκοῦσιν αἱ ἰδέαι τοῖς λέγουσιν ἰδέας εἶναι.*

[c] Ibid. a. 23-37: *ἔτι εἰ τῶν καθ' ὁμωνυμίαν λεγομένων ἕνα λόγον ἁπάντων κοινὸν ἀπέδωκεν.—ἀλλ' οὐδὲν ἧττον, εἰ ὁποτερωσοῦν πεποίηκεν, ἡμάρτηκεν.*

Aristotle here cites and censures the definition of life given by a philosopher named Dionysius; he remarks that life is an equivocal term, having one meaning in animals, another and a different one in plants. Dr. Whewell has remarked that even at the present day a good definition of life is matter of dispute, and still a desideratum with philosophers.

Mr. John S. Mill adverts, in more than one portion of his 'System of Logic' (Bk. IV. ch. iii. s. 5, p. 222. seq.; Bk. V. ch. v. s. 8, p. 371), to the mistake and confusion arising from attempts to define Equivocal Terms. "The inquiries of Plato into the definitions of some of the most general terms of moral speculation, are characterized by Bacon as a far nearer approach to a true inductive method than is elsewhere to be found among the ancients, and are, indeed, almost perfect examples of the preparatory process of comparison and abstraction; but, from being unaware of the law just mentioned, he often wasted the powers of this great logical instrument on inquiries in which it could realize no result, since the phenomena, whose common properties he so elaborately endeavoured to detect, had not really any common properties. Bacon himself fell into the same error in his speculations on the nature of heat, in which he evidently confounded, under the name hot, classes of phenomena which had no property in common."—"He occasionally proceeds like one who seeking for the cause of hardness, after examining that quality in iron, flint, and diamond, should expect to find that it is something that can be traced also in hard water, a hard knot, and a hard heart."

not apply universally, resorts to the pretence that the definiend, though really univocal, is equivocal, you will press him with the true definition of the part not included under his definition, and you will show that this true definition suits also for the remaining parts of the definiend. You will thus confute him by showing that, upon his original hypothesis, it must follow that there are two distinct definitions for the same definiend—the bad one which he has given, and the true one which you have constrained him to admit.[a] Perhaps, however, the term which he has undertaken to define may be really equivocal, and therefore undefinable; nevertheless, when you have shown the insufficiency of his definition, he may refuse to admit that the term is equivocal, but will deny a portion of its real meaning. You will then remind him that, as to the meaning of names, we must recognize tradition and custom without presuming to disturb it; but that, when we combine these names in our own discourse, we must beware of those equivocations which mislead the multitude.[b]

28. If the definiend, of which a definition is tendered to you, is a compound, you may subtract from this definition the definition of one of the parts of the definiend, and then examine whether the remainder will suit as a definition of the remaining part of the definiend. If the remainder should not suit, this will show that the entire definition tendered is not tenable. Thus, if the definiend be a finite straight line, and if the definition tendered be, It is the boundary of a finite plane, of which (boundary) the middle covers or stands in the way of the extremities; you may subtract from this definition the definition of a finite line, viz., the boundary of a plane surface having boundaries, and the remainder of the definition ought then to suit for the remainder of the definiend. Now the remainder of the definiend is—straight; and the remainder of the definition is—that of which the middle covers or stands in the way of the extremities. But these two will *not* suit; for a line may be straight, yet infinite, in which case it will have neither middle nor extremities. Accordingly, since the remainder of the defini-

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[a] Topic. VI. x. p. 148, a. 37, seq. *ἐπεὶ δ' ἔνια λανθάνει τῶν ὁμωνύμων, ἐρωτῶντι μὲν ὡς συνωνύμοις χρηστέον, αὐτῷ δ' ἀποκρινομένῳ διαιρετέον. ἐπεὶ δ' ἔνιοι τῶν ἀποκρινομένων τὸ μὲν συνώνυμον ὁμώνυμόν φασιν εἶναι, ὅταν μὴ ἐφαρμόττῃ ἐπὶ πᾶν ὁ ἀποδοθεὶς λόγος,—προδιομολογητέον ὑπὲρ τῶν τοιούτων ἢ κροσυλλογιστέον ὅτι ὁμώνυμον ἢ συνώνυμον, ὁπότερον ἂν ᾖ· μᾶλλον γὰρ συγχωροῦσιν οὐ προορῶντες τὸ συμβησόμενον.*

These counsels of Aristotle are remarkable, as bearing on the details, and even the artifices, of dialectical debate.

[b] Topic. VI. x. p. 148, b. 16-22. *ῥητέον πρὸς τὸν τοιοῦτον ὅτι τῇ μὲν ὀνομασίᾳ δεῖ χρῆσθαι τῇ παραδεδομένῃ καὶ παρεπομένῃ καὶ μὴ κινεῖν τὰ τοιαῦτα, ἔνια δ' οὐ λεκτέον ὁμοίως τοῖς πολλοῖς.*

tion will not suit for the remainder of the definiend, this will serve as an argument that the entire definition tendered is not a good one.[a]

If the definiend be a compound, and if the definition contain no greater number of words than the definiend, the definition must be faulty; it will be nothing better than a substitution of words. Still more faulty will it be, if it substitutes rare and strange words in place of others which are known and familiar; or if it introduces a new word which signifies something different from that which it replaces.[b]

The definiend, being compound, will contain both a generic and a differential term. In general, the generic term will be the better known of the two; yet sometimes the other is the better known. Whichever of the two is the better known, the definer ought to choose that, if all that he aims at is a mere substitution of one name in place of another. But, if he aims at something more or at the substitution of an explanatory proposition in place of a name (without which there can be no true definition), he ought then to choose the differentia in preference to the genus; for the definition is produced for the purpose of imparting knowledge, and the differentia, being usually less known than the genus, stands most in need of extraneous help to cognition.[c] When the definition of the differentia has thus been tendered, you will examine whether it will be equally suitable for any other definiend also. If it be, you have an argument against the goodness of the definition. For example, the definition of odd number tendered to you may be—number having a middle. Here, since number is common both to the definiend and to the definition, having-a-middle is evidently put forward as the equivalent of odd. But this cannot stand as equivalent to odd; since various other subjects which are not odd (such, for example, as a body or a line), nevertheless have a middle. Since, then, we see that having-a-middle would be suitable in defining definiends which are not odd, it cannot be admitted, without some qualifying adjunct, as a good definition of odd. The adjunct annexed must declare in what sense middle is intended, since it is an equivocal phrase.[d]

29. If the definiend be a something really existent, the definition given of it ought not to be a proposition declaring an incompatible combination, such as neither does nor can exist. Some, for example, define white—colour mingled with fire; which is

[a] Topic. VI. xi. p. 148, b. 23-32.
[b] Ibid. b. 32-p. 149, a. 13.
[c] Ibid. p. 149, a. 14-28.
[d] Ibid. a. 29-37.

incompatible, since that which is incorporeal (colour) cannot be mingled with a body (fire).[a]

30. Again, suppose the definiend to be a *Relatum*; the correlate thereof must of course be declared in the definition. Care, however, must be taken that it shall be declared, not in vague generality but, distinctly and with proper specialization; otherwise, the definition will be incorrect either entirely or partially. Thus, if the respondent defines medicine—the science of the really existent, he is incorrect either wholly or partially. The *relatum* ought to reciprocate or to be co-extensive with its correlate.[b] When the correlate, however, is properly specialized in the definition, it may be declared under several different descriptions; for the same real thing may be at once *ens, album, bonum*. None of these descriptions will be incorrect. Yet, if the correlate is thus described in the definition of a *relatum*, the definition cannot be considered good or sufficient. For it applies to more things besides the definiend; and a good definition ought to reciprocate or to be co-extensive with its definiend.[c]

31. Another mistake in defining is committed, when a man defines, not the subject purely and simply but, the subject in a high measure of excellence. Sometimes the rhetor (*e.g.*) is defined—one who can perceive and produce without omission all that there is plausible in any cause; the thief is defined—one who takes away secretly what belongs to another. But these are the definitions, not of a rhetor and a thief generally but, of a skilful rhetor and skilful thief. The thief is one who is bent on taking away secretly, not one who *does* take away secretly.[d]

32. Again, another error consists in defining what is desirable in itself and on its own account, as if it were desirable as a means towards some other end—as productive or preservative thereof. For example, if a man defines justice—that which is preservative of the laws; or wisdom—that which is productive of happiness, he presents them as if they were desirable, not for themselves but, with reference to something different from themselves. This is a mistake; and it is not less a mistake, though very possibly the same subject may be desirable both for

[a] Topic. VI. xii. p. 149, a. 38-b. 3.

[b] Ibid. b. 4, seq.: *ἔτι ὅσοι μὴ διαιροῦσιν ἐν τοῖς πρός τι πρὸς ὃ λέγεται, ἀλλ' ἐν πλείοσι περιλαβόντες εἶπαν, ἢ ὅλως ἢ ἐπί τι ψεύδονται, οἷον εἴ τις τὴν ἰατρικὴν ἐπιστήμην ὄντος εἶπεν—ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων, ἐπειδὴ ἀντιστρέφει πάντα τὰ πρός τι.*

[c] Ibid b. 12-23. *ἔτι δ' ἀδύνατον τὸν τοιοῦτον λόγον ἴδιον τοῦ ἀποδοθέντος εἶναι·—δῆλον οὖν ὅτι ὁ τοιοῦτος οὐδεμιᾶς ἐστὶν ἐπιστήμης ὁρισμός· ἴδιον γὰρ καὶ οὐ κοινὸν δεῖ τὸν ὁρισμὸν εἶναι.*

[d] Ibid. b. 24-30. *οὐ γὰρ ὁ λάθρᾳ λαμβάνων, ἀλλ' ὁ βουλόμενος λάθρᾳ λαμβάνειν, κλέπτης ἐστίν.*

itself and for the sake of something else. For the definition ought to enunciate what is best in the definiend; and the best of everything resides most in its essence, not in what it is relatively to something else. It is better to be desirable *per se*, than *alterius causâ*.[a]

33. Perhaps the definition tendered may be a complex proposition, enunciating two terms either jointly or severally, in one or other of three combinations. Either the definiend is A and B; or it is that which springs out of A and B; or it is A with B.[b] In each of these three cases you may find arguments for impugning the definition.

a. Thus, take the first of the three. Suppose the respondent to define justice by saying, It is temperance and courage. You may urge against him, that two men, one of whom is temperate without being courageous, while the other is courageous without being temperate, will be just together, though neither of them separately is just; nay, that each of them separately (the one being temperate and cowardly, the other courageous and intemperate), will be both just and unjust; since, if justice is temperance and courage, injustice will be intemperance and cowardice.[c] The definer is open to the farther objection that he treats enumeration of parts as identical with the whole; as if he defined a house—bricks and mortar, forgetting the peculiar mode of putting them together. Bricks and mortar may exist, and yet there may be no house.[d]

b. Next, suppose the definition to declare, that the definiend is that which springs from A and B—is a result or compound of A and B. You will then examine whether A and B are such as to yield any result; for some couples (as a line and a number) yield no result. Or, perhaps, the definiend may by its own nature inhere in some first subject, while A and B do not inhere in any one first subject, but one in the other; in which case the definition is assailable.[e] Or, even granting that it is the nature of A and B to inhere in the same first subject, you may find that that first subject is not the same as the one in which the definiend inheres. Now the whole cannot thus inhere in one, and the parts in another: you will here have a good objection.

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[a] Topic. VI. xii. p. 149, b. 31-39. *ἑκάστου γὰρ τὸ βέλτιστον ἐν τῇ οὐσίᾳ μάλιστα, βέλτιον δὲ τὸ δι' αὑτὸ αἱρετὸν εἶναι τοῦ δι' ἕτερον, ὥστε τοῦτο καὶ τὸν ὁρισμὸν ἔδει μᾶλλον σημαίνειν.*

[b] Ibid. xiii. p. 150, a. 1-4: *σκοπεῖν δὲ καὶ εἴ τινος ὁρισμὸν ἀποδιδοὺς τάδε, ἢ τὸ ἐκ τούτων, ἢ τόδε μετὰ τοῦδε ὡρίσατο.*

[c] Ibid. a. 4-14.

[d] Ibid. a. 15-21. *δῆλον γὰρ ὅτι τῶν μερῶν ὄντων οὐδὲν κωλύει τὸ ὅλον μὴ εἶναι· ὥστε οὐ ταὐτὸν τὰ μέρη τῷ ὅλῳ.*

[e] Ibid. a. 22-30. *ἔτι εἰ τὸ μὲν ὡρισμένον ἐν ἑνί τινι πέφυκε τῷ πρώτῳ γίνεσθαι, ἐξ ὧν δ' ἔφησεν αὐτὸ εἶναι, μὴ ἐν ἑνί τινι τῷ πρώτῳ, ἀλλ' ἑκάτερον ἐν ἑκατέρῳ.*

Or, perhaps, it may appear that, if the whole be destroyed, the parts will be destroyed also; which ought not to be, but the reverse; for, when the parts are destroyed, the whole must necessarily vanish. Or, perhaps, the definiend may be good or bad, while the parts of the definition (A and B) are neither one nor the other. (Yet this last is not a conclusive objection; for it will sometimes happen in compound medicines that each of the ingredients is good, while they are bad if given in conjunction.)[a] Or, perhaps, the whole may bear the same name as one of its parts: this, also, will render the definition impeachable. Still more will it be impeachable, if it enunciates simply a result or compound of A and B, without specifying the manner of composition; it ought to declare not merely the parts of the compound, but also the way in which they are put together to form the compound.[b]

c. Lastly, suppose the definition to declare that the definiend is A along with B. You will note, first, that this third head must be identical either with the first or with the second (*e.g.*, honey *with* water means either honey and water, or the compound of honey with water); it will therefore be open to impeachment on one or other of the above-named grounds of objection, according as the respondent may admit.[c] You may also distinguish all the different senses in which one thing may be said to be *with* another (*e.g.*, when the two are in the same recipient, justice and courage together in the soul; or in the same place; or in the same time), and you may be able to show that in none of these senses can the two parts of the definition be truly said to be one along with the other.[d] Or, if it be true that these two parts are co-existent in time, you may enquire whether they are not affirmed with relation to different correlates. *E.g.*, The definition of courage may be tendered thus: Courage is daring along with right intelligence; upon which you may remark that daring may have reference to an act of spoliation, and that right intelligence may have reference to the preservation of health. Now a man who has both daring and right intelligence in *these* senses, cannot be termed courageous, and thus you will have an argument against the definition. And, even if they be affirmed with reference to the same correlate (*e.g.*, the duties of a physician), a man who has both daring and right intelligence

[a] Topic. VI. xiii. p. 150, a. 30-b. 13.

[b] Ibid. b. 14-26. ἔτι εἰ μὴ εἴρηκε τὸν τρόπον τῆς συνθέσεως· &c.

[c] Ibid. b. 27-32. ὥστ' ἐὰν ὁποτερφοῦν τῶν εἰρημένων ταὐτὸν ὁμολογήσῃ εἶναι τὸ τόδε μετὰ τοῦδε, ταὐτὰ ἁρμόσει λέγειν ἅπερ πρὸς ἑκάτερον τούτων ἔμπροσθεν εἴρηται.

[d] Ibid. b. 32-39. ἢ ὡς ἔν τινι ταὐτῷ δεκτικῷ, &c.

in reference to these duties will hardly be styled courageous; the term courage must be so defined as to have reference to its appropriate end; *e.g.*, the dangers of war, or any still more public-spirited end.[a] Another mistake may, perhaps, be committed in this same sort of definition—A along with B; as when, for example, the definition tendered of anger is—pain along with the belief of being treated with contempt. What the definer really intends here is, that the pain arises from the belief of being treated with contempt. But this is not expressed by the terms of his definition, in any one of their admissible meanings.[b]

34. Perhaps the definition, while including two or more distinct parts, may be tendered in this form: The definiend is the composition of A and B; *e.g.*, animal is the composition of soul and body. You will first note that the definer has not declared what sort of composition. There is a great difference between one mode of composition and another; the mode must be specialized. Both flesh and bone may be defined—a composition of fire, earth, and water; but one mode of composition makes flesh, another makes bone, out of these same elements. You may also take the farther objection that to define a compound as composition is erroneous; the two are essentially disparate, one of them being abstract, the other concrete.[c]

35. If the definiend be in its nature capable of receiving two contrary attributes, and if the respondent define it by one or other of them, you have an argument against him. If one of them is admissible, the other must be equally so; and upon this supposition there would be two distinct definitions of the same subject; which has been already declared impossible. Thus, it is wrong to define the soul as a substance which is recipient of knowledge; the soul is also recipient of ignorance.[d]

36. Perhaps the definiend is not sufficiently well known to enable you to attack the definition as a whole, but you may find arguments against one or other of its parts; this is sufficient to upset it. If it be obscure and unintelligible, you should help to correct and re-model it until it becomes clear; you will then see what are the really assailable points in it. When you indicate and expose the obscurity, the respondent must either substitute some clearer exposition of his own meaning, or else he must acquiesce in that which you propose

[a] Topic. VI. xiii. p. 151, a. 1-13. *οὔτε γὰρ πρὸς ἕτερον αὐτῶν ἑκάτερον δεῖ λέγεσθαι οὔτε πρὸς ταὐτὸν τὸ τυχόν, ἀλλὰ πρὸς τὸ τῆς ἀνδρείας τέλος, οἷον πρὸς τοὺς πολεμικοὺς κινδύνους ἢ εἴ τι μᾶλλον τούτου τέλος.*

[b] Ibid. a. 14-19.

[c] Ibid. a. 20-31.

[d] Ibid. a. 32-b. 2.

as substitute.[a] If the improved definition which you propose is obviously clearer and better, his previous definition is of course put out of court; since there cannot be several definitions of the same subject.[b]

To conclude, one suggestion may be given bearing upon all the arguments that you have to carry on against definitions tendered by respondents:—Reflect on the definiend, and frame a definition of it for yourself, as cleverly as you can at the moment; or call to mind any good definition of it which you may have heard before. This will serve you as a standard with which to compare the definition tendered, so that you will see at once what there is in it either defective or redundant, and where you can find arguments against it.[c]

VII.

In the Seventh Book of the Topica Aristotle continues his review of the manner of debating theses which profess to define, but enters also on a collateral question connected with that discussion: viz., By what arguments are we to determine whether two Subjects or Predicates are the same *Numero* (*modo maxime proprio*), as distinguished from being the same merely *Specie* or *Genere*? To measure the extent of identity between any two subjects, is important towards the attack and defence of a definition.[d]

Two subjects (A and B) being affirmed as the same *numero*, you may test this by examining the Derivatives, the Co-ordinates, and the Opposites, of each. Thus, if courage is identical with justice, the courageous man will be identical with the just man; courageously will be identical with justly. Likewise, the opposite of courage (in all the four modes of Opposition) will be identical with the opposite of justice. Then, again, the generators and destroyers, the generations and destructions, of courage, will be identical with those of justice.[e] If there be any predicate applied to courage in the superlative degree, the same predicate

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[a] Topic. VI. xiv. p. 151, b. 3-11. ὅσοι τ' ἀσαφεῖς τῶν ὁρισμῶν, συνδιορθώσαντα καὶ συσχηματίσαντα πρὸς τὸ δηλοῦν τι καὶ ἔχειν ἐπιχείρημα, οὕτως ἐπισκοπεῖν· ἀναγκαῖον γὰρ τῷ ἀποκρινομένῳ ἢ δέχεσθαι τὸ ἐκλαμβανόμενον ὑπὸ τοῦ ἐρωτῶντος, ἢ αὐτὸν διασαφῆσαι τί ποτε τυγχάνει τὸ δηλούμενον ὑπὸ τοῦ λόγου.

[b] Ibid. b. 12-17.

[c] Ibid. b. 18-23. ἀνάγκη γάρ, ὥσπερ πρὸς παράδειγμα θεώμενον, τό τ' ἐλλεῖπον ὧν προσῆκεν ἔχειν τὸν ὁρισμὸν καὶ τὸ προσκείμενον περιέργως καθορᾶν, ὥστε μᾶλλον ἐπιχειρημάτων εὐπορεῖν.

[d] Ibid. VII. i. p. 151, b. 28: πότερον δὲ ταὐτὸν ἢ ἕτερον κατὰ τὸν κυριώτατον τῶν ῥηθέντων περὶ ταὐτοῦ τρόπων (ἐλέγετο δὲ κυριώτατα ταὐτὸν τὸ τῷ ἀριθμῷ ἕν) &c.

[e] Ibid. p. 152, a. 2.

will also be applied to justice in the superlative degree.[a] If there be a third subject C with which A is identical, B also will be identical therewith. The same attributes predicable of A will also be predicable of B; and, if the two be attributes, each will be predicable of the same subjects of which the other is predicable. Both will be comprised in the same Category, and will have the same genus and differentia. Both will increase or diminish under the same circumstances. Each, when added to or subtracted from any third subject, will yield the same result.[b]

Farther, in examining the thesis (A is identical *numero* with B) you must look not merely whether it involves actually any impossible consequences, but also whether any cases can be imagined in which it would involve such;[c] whether the identity is not merely *specie* or *genere*; finally, whether the one can exist without the other.[d]

Such are the various *loci* available for argument against the thesis affirming the equivocal predicate *same*. All of them may be useful when you are impugning a definition; for the characteristic of this is to declare that the defining proposition is equivalent or identical with the defined name; and, if you can disprove such identity, you upset the definition. But these *loci* will be of little avail, if your task is to defend or uphold a definition; for, even if you succeed in establishing the above-mentioned identity, the definition may still be open to attack for other weaknesses or defects.[e]

To uphold, or prove by way of syllogism, requires a different procedure. It is a task hard, but not impossible. Most disputants assume without proving their definition, in the same

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[a] Topic. VII. p. 152, a. 5-30: *σκοπεῖν δὲ καὶ ὧν θάτερον μάλιστα λέγεται ὁτιοῦν, εἰ καὶ θάτερον τῶν αὐτῶν τούτων κατὰ τὸ αὐτὸ μάλιστα λέγεται, καθάπερ Ξενοκράτης τὸν εὐδαίμονα βίον καὶ τὸν σπουδαῖον ἀποδείκνυσι τὸν αὐτόν, ἐπειδὴ πάντων τῶν βίων αἱρετώτατος ὁ σπουδαῖος καὶ ὁ εὐδαίμων· ἓν γὰρ τὸ αἱρετώτατον καὶ τὸ μέγιστον·* &c.

Aristotle remarks that Xenokrates here carried his inference too far: that the application of the same superlative predicate to A and B affords indeed a presumption that they are *Idem numero*, but not a conclusive proof thereof; that the predicate might be applied in like manner, if B were a species comprised in A as genus.

Xenokrates made the mistake of drawing an affirmative conclusion from syllogistic premisses in the Second figure.

[b] Topic. VII. i. p. 152, a. 31-b. 16.

[c] Ibid. b. 17-24. Aristotle illustrates this *locus* as follows:—Some say that to be *void*, and to be *full of air*, are the same. But suppose the air to be drawn away; then the place will no longer be full of air, yet it will still be void, even more than it was before. One of the two terms declared to be identical is thus withdrawn, while the other remains. Accordingly, the two are not really identical. This illustration fits better to the principle laid down, b. 34: *εἰ δύνατον θάτερον ἄνευ θατέρου εἶναι· οὐ γὰρ ἂν εἴη ταὐτόν.*

[d] Ibid. b. 25-35.

[e] Ibid. ii. p. 152, b. 36-p. 153, a. 5. *ἅπαντες οἱ πρὸς ταὐτὸν ἀνασκευαστικοὶ τόποι καὶ πρὸς ὅρον χρήσιμοι—τῶν δὲ κατασκευαστικῶν τόπων οὐδεὶς χρήσιμος πρὸς ὅρον·* &c.

way as the teachers of Geometry and Arithmetic do in their respective sciences. Aristotle tells us that he does not here intend to give a didactic exposition of Definition, nor of the proper way of defining accurately or scientifically. To do this (he says) belongs to the province of Analytic; while in the present treatise he is dealing merely with Dialectic. For the purposes, then, of Dialectic, he declares that syllogistic proof of a definition is practicable, inasmuch as the definition is only a proposition declaring what is essential to the definiend; and nothing is essential except genus (or genera) and differentiæ.[a]

Towards the establishment of the definition which you have to defend, you may find arguments by examining the Contraries and Opposites of the component terms, and of the defining proposition. If the opposite of the definition is allowed as defining properly the opposite of the definiend, you may argue from hence that your own definition is a good one.[b] If you can show that there is declared in your definition a partial correspondence of contraries either separately in the genus, or separately in the differentia, you have a certain force of argument in your favour; and, if you can make out both the two separately, this will suffice for your entire definition.[c] You may also draw arguments from the Derivatives, or Co-ordinates of your own terms; from Analogous Terms, or from Comparates (More or Less). If the definition of any one of these is granted to you, an argument is furnished for the defence of an analogous definition in the case of your own term. If it is conceded as a good definition that forgetfulness is—the casting away of knowledge, then the definition must also hold good that to forget is—to cast away knowledge. If destruction is admitted to be well defined—dissolution of essence, then to be destroyed is well defined—to be dissolved as to essence. If the wholesome may be defined—that which is productive of health, then also the profitable may be defined—that which is productive of good; that is, if the declaration of the special end makes a good definition in one case, so it will also in the other.[d]

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[a] Topic. VII. iii. p. 153, a. 6-22. Compare Analyt. Post. II. iii.-x., where the theory of Scientific Definition is elaborately worked out; supra, Vol. I. ch. viii. pp. 346-353.

[b] Ibid. a. 28: *εἰ γὰρ ὁ ἀντικείμενος τοῦ ἀντικειμένου, καὶ τὸν εἰρημένον τοῦ προκειμένου ἀνάγκη εἶναι (ὅρον).*

[c] Ibid. b. 14: *καθόλου δ' εἰπεῖν, ἐπεὶ ὁ ὁρισμός ἐστιν ἐκ γένους καὶ διαφορῶν, ἂν ὁ τοῦ ἐναντίου ὁρισμὸς φανερὸς ᾖ, καὶ ὁ τοῦ προκειμένου ὁρισμὸς φανερὸς ἔσται.*

[d] Topic. VII. iii. p. 153, b. 25-p. 154, a. 11: *ἔτι ἐκ τῶν πτώσεων καὶ τῶν συστοίχων· ἀνάλκη ἀκολουθεῖν τὰ γένη τοῖς γένεσιν καὶ τοὺς ὅρους τοῖς ὅροις.—ἑνὸς οὖν ὁποιουοῦν τῶν εἰρημένων ὁμολογηθέντος, ἀνάγκη καὶ τὰ λοιπὰ ὁμολογεῖσθαι.—καὶ ἐκ τῶν ὁμοίως ἐχόντων πρὸς ἄλληλα—ὁμοίως γὰρ ἕκαστον τῶν εἰρημένων πρὸς τὸ οἰκεῖον τέλος ἔχει.*

These *loci*, from *Analoga*, from Derivatives, from Conjugates, are of the most frequent avail in dialectical debates or definitions. The disputant must acquire promptitude in the employment of them. He must learn, moreover, to test a definition tendered to him by calling to mind particulars and sub-species, so as to determine whether the definition fits them all. Such a procedure will be found especially serviceable in debate with one who upholds the Platonic Ideas. Care must also be taken to see whether the definiend is distorted from its proper signification, or whether it is used in defining itself.[a]

These last observations are addressed to the questioner or assailant of the definition. We have already seen however that his task is comparatively easy; the grand difficulty is to defend a definition. The respondent cannot at once see what he ought to aim at; and, even when he does see it, he has farther difficulty in obtaining the requisite concessions from his opponent, who may decline to grant that the two parts of the definition tendered are really the genus and differentia of the definiend; while, if there be any thing besides these two parts contained in the essence of the definiend, there is an excuse for declining to grant it.[b] The opponent succeeds, if he can establish one single contradictory instance; accordingly, a syllogism with particular conclusion will serve his purpose. The respondent, on the other hand, must meet each one of these instances, must establish an universal conclusion, and must show that his definition reciprocates with the definiend, so that, wherever the latter is predicable, the former is predicable likewise, and not in any other case whatever.[c]

So much greater are the difficulties belonging to the defence of a Definition, as compared with the attack upon it; and the same may be said about attack and defence of a Proprium, and of a Genus. In both cases, the assailant will carry his point, if he can show that the predicate in question is not predicable, in this relation, of all, or that it is not predicable, in this relation, of any one. But the defendant is required to make good the universal against every separate objection advanced against any one of the particulars. It is a general rule, that the work of destruction is easier than that of construction; and the present cases come under that rule.[d] The hardest of all theses to defend,

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[a] Topic. VII. iv. p. 154, a. 12-22.

[b] Topic. VII. v. p. 154, a. 23, seq. καὶ γὰρ ἰδεῖν αὐτὸν καὶ λαβεῖν παρὰ τῶν ἐρωτωμένων τὰς τοιαύτας προτάσεις οὐκ εὐπετές, &c.

[c] Ibid. a. 32-b. 12.

[d] Ibid. b. 13-32. ἔοικε δ', ὥσπερ καὶ ἐν τοῖς ἄλλοις τὸ διαφθεῖραι τοῦ ποιῆσαι ῥᾷον, οὕτω καὶ ἐπὶ τούτων τὸ ἀνασκευάσαι τοῦ κατασκευάσαι.

and the easiest to overthrow, is where Definition is affirmed; for the respondent in this case is required to declare well the essence of his subject, and he stands in need of the greatest number of auxiliary data; while all the *Loci* for attack, even those properly belonging to the Proprium, the Genus, and the Accident, are available against him.[a] Next in order, as regards difficulty of defence, comes the theses affirming Proprium; where the respondent has to make out, not merely that the predicate belongs to the subject, but that it belongs thereunto exclusively and reciprocally: here also all the *Loci* for attack, even those properly belonging to Accident, are available.[b] Easiest of all theses to defend, while it is the hardest to impugn, is that in which Accident alone is affirmed—the naked fact, that the predicate A belongs to the Subject B, without investing it with the character either of Genus or Proprium. Here what is affirmed is a minimum, requiring the smallest array of data to be conceded; moreover, the *Loci* available for attack are the fewest, since many of those which may be employed against Genus, Proprium, and Definition, have no application against a thesis affirming merely Accident.[c] Indeed, if the thesis affirmed be only a proposition particular (and not universal), affirming Accident (and nothing more), the task of refuting it will be more difficult than that of maintaining it.[d]

VIII.

The Eighth Book of the Topica brings our attention back to the general considerations contained in the First. In the intervening part of the treatise we have had the quadruple distribution of dialectical problems, with the enumeration of those *Loci* of argument which bear upon each or all: we are now invited to study the application of these distinctions in practice, and with this view to look once more both at the persons and the purposes of dialectical debate. What is the order of procedure most suitable, first, for the questioner or assailant; next, for the respondent or defender?[e] This order of procedure marks

[a] Topic. VII. v. p. 155, a. 3-21: *φανερὸν δὲ καὶ διότι πάντων ῥᾷστον ὅρον ἀνασκευάσαι.*

[b] Ibid. a. 23-27. Aristotle has in view the most complete Proprium: belonging *omni, soli, et semper.*

[c] Ibid. a. 28-36: *ῥᾷστον δὲ πάντων κατασκευάσαι τὸ συμβεβηκός·—ἀνασκευάζειν δὲ χαλεπώτατον τὸ συμβεβηκός, ὅτι ἐλάχιστα ἐν αὐτῷ δέδοται,* &c.

[d] Ibid. p. 154, b. 36-p. 155, a. 2: *τὸ δ' ἐπὶ μέρους ἀνάπαλιν ῥᾷον κατασκευάσαι ἢ ἀνασκευάσαι· κατασκευάζοντι μὲν γὰρ ἀπόχρη δεῖξαι τινὶ ὑπάρχον, ἀνασκευάζοντι δὲ δεικτέον ὅτι οὐδενὶ ὑπάρχει.*

[e] Ibid. VIII. i. p. 155, b. 3: *μετὰ δέ ταῦτα περὶ τάξεως, καὶ πῶς δεῖ ἐρωτᾶν, λεκτέον.*

the distinctive line of separation between the dialectician and the man of science or philosopher: to both of them the *Loci* of arguments are alike available, though each of them deals with these arguments in his own way, and in an arrangement suitable for his purpose.[a] The dialectician, being engaged in debate, must shape his questions, and regulate his march as questioner, according to the concessions obtained or likely to be obtained from his respondent; who, if a question be asked having an obvious refutative bearing on the thesis, will foresee the consequences of answering in the affirmative, and will refuse to grant what is asked. On the contrary, the philosopher, who pursues investigation with a view to his own satisfaction alone, is under no similar restriction. He looks out at once for such premisses as conduct straight to a conclusion; and, the more obvious their bearing on the conclusion is, the more scientific will the syllogism be, and the better will he be pleased.[b]

In the *praxis dialectica* (as has already been stated) two talkers are assumed—the respondent who sets up a thesis which he undertakes to defend, and a questioner who interrogates with a view to impugn it; or at least with a view to compel the other to answer in an inconsistent or contradictory manner. We are to assume, farther, a circle of listeners, who serve to a certain extent as guarantees against any breach of the rules of debate.[c] Three distinct purposes may be supposed in the debate. 1. You as a questioner may be a teacher, and the respondent a learner; your purpose is to teach what you know, while he wishes to learn from you what he does not know. 2. You engage in an intellectual contest or duel with the respondent, each of you seeking only victory over the other, though subject on both sides to observance of the rules of debate. 3. You neither seek to teach, nor to conquer; you and the respondent have both the same purpose—to test the argumentative consequences of different admissions, and to acquire a larger command of the chains of reasoning *pro* and *con*, bearing on some given topic.[d]

According as the aim of the talkers is one or other of these three, the good or bad conduct of the dialogue, on the part both of questioner and of respondent, must be differently appreciated. Of each of the three, specimens may be found in Plato, though not carefully severed but running one into the other. Aristotle

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[a] Topic. VIII. i. p. 155, b. 7: *μέχρι μὲν οὖν τοῦ εὑρεῖν τὸν τόπον, ὁμοίως τοῦ φιλοσόφου καὶ τοῦ διαλεκτικοῦ ἡ σκέψις, τὸ δ' ἤδη ταῦτα τάττειν καὶ ἐρωτηματίζειν ἴδιον τοῦ διαλεκτικοῦ.*

[b] Ibid. b. 10-16.

[c] Ibid. ii. p. 158, a. 10.

[d] Ibid. v. p. 159, a. 26: *οὐ γὰρ οἱ αὐτοὶ σκοποὶ τοῖς διδάσκουσιν ἢ μανθάνουσι καὶ τοῖς ἀγωνιζομένοις, οὐδὲ τούτοις τε καὶ τοῖς διατρίβουσι μετ' ἀλλήλων σκέψεως χάριν.*

appears to have been the first to formulate the distinction theoretically, and to prescribe for the practice of each separately. He tells us particularly that no one before him had clearly distinguished the third head, and prescribed for it apart from the second. The merit of having first done this he expressly claims for the Topica.[a]

Both the questioner and the respondent have a duty towards the dialogue; their common purpose is to conduct it well, not only obeying the peremptory rules, but displaying, over and above, skill for the attainment of their separate ends. Under the first and third heads, both may be alike successful. Under the second or contentious head, indeed, one only of the two can gain the victory; yet, still, even the defeated party may exhibit the maximum of skill which his position admits. This is sufficient for his credit; so that the common work will still be well performed.[b] But a partner who performs his own part so as to obstruct instead of forwarding this common work—who conducts the debate in a spirit of ill-tempered contention rather than of regular Dialectic—deserves censure.[c]

Having thus in view the dialogue as a partnership for common profit, Aristotle administers counsel to the questioning as well as to the responding partner. You as questioner have to deal with a thesis set up by the respondent. You see at once what the syllogism is that is required to prove the contrary or contradictory of that thesis; and your business is so to shape your questions as to induce the respondent to concede the premisses necessary towards that syllogism. If you ask him at once and directly to concede these premisses, he sees your drift and answers in the negative. You must therefore begin your approaches from a greater distance. You must ask questions bearing only indirectly and remotely upon your ultimate conclusion.[d] These outlying and preparatory questions will fall under four principal heads. Either (1) they will be inductive particulars, multiplied in order that you may obtain assent to

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[a] Topic. VIII. v. p. 159, a. 25-37: ἐπεὶ δ' ἐστὶν ἀδιόριστα τοῖς γυμνασίας καὶ πείρας ἕνεκα τοὺς λόγους ποιουμένοις—ἐν δὲ ταῖς διαλεκτικαῖς συνόδοις τοῖς μὴ ἀγῶνος χάριν ἀλλὰ πείρας καὶ σκέψεως τοὺς λόγους ποιουμένοις, οὐ διήρθρωταί πω τίνος δεῖ στοχάζεσθαι τὸν ἀποκρινόμενον καὶ ὁποῖα διδόναι καὶ ποῖα μή, πρὸς τὸ καλῶς ἢ μὴ καλῶς φυλάττειν τὴν θέσιν. ἐκεὶ οὖν οὐδὲν ἔχομεν παραδεδομένον ὑπ' ἄλλων, αὐτοί τι πειραθῶμεν εἰπεῖν.

[b] Ibid. xi. p. 161, a. 19-b. 10: οὐ γὰρ ἔστιν ἐπὶ θατέρῳ μόνον τὸ καλῶς ἐπιτελεσθῆναι τὸ κοινὸν ἔργον—ἐπεὶ δὲ φαῦλος κοινωνὸς ὁ ἐμποδίζων τὸ κοινὸν ἔργον, δῆλον ὅτι καὶ ἐν λόγῳ. Compare Topica, I. iii. p. 101, b. 8.

[c] Ibid. a. 33: διαλεκτικῶς καὶ μὴ ἐριστικῶς.—b. 2-18.

[d] Ibid. i. p. 155, b. 29: τὰς μὲν οὖν ἀναγκαίας, δι' ὧν ὁ συλλογισμός, οὐκ εὐθὺς αὐτὰς προτατέον, ἀλλ' ἀποστατέον ὅτι ἀνωτάτω, &c.

an universal comprising them all; or (2) they will be put for the purpose of giving dignity to your discourse; or (3) they will be shaped with a view to conceal or keep out of sight the ultimate conclusion that you aim at; or (4), lastly, they will be introduced to make your whole argument clearer.[a] The third of these four general heads—the head of questions for the purpose of concealment—comes out principally in dialectical contests for victory. In those it is of supreme importance, and the result depends much on the employment of it; but even in other dialectical debates you must employ it to a certain extent.[b]

Aristotle goes at great length into the means of Concealment. Suppose the proposition which you desire to get conceded is, The science of two contraries is the same. You will find it useful to commence by a question more general: *e.g.*, Is the science of two opposites the same? If the respondent answers in the affirmative, you will deduce from his concession, by syllogism, the conclusion which you desire. If he answers in the negative, you must then try to arrive at your end by a string of questions respecting particular contraries or opposites; which if the respondent grants successively, you will bring in your general question ultimately as the inductive result from those concessions.[c] Your particulars must be selected from obvious matters of sense and notoriety. You are likely to obtain in this way admissions which will serve as premisses for several different prosyllogisms, not indeed sufficient by themselves, yet valuable as conditions and preliminaries to the final syllogism whereby the thesis is refuted. For, when the questions are put in this way, the respondent will not see your drift nor the consequences of his own concessions; so that he will more readily concede what you want.[d] The better to conceal your purpose, you will refrain from drawing out any of these prosyllogisms clearly at once; you will not even put the major and minor premiss of any one of them in immediate sequence; but you will confound the order of them intentionally, stating first a premiss belonging to one, and next a premiss belonging to another.[e] The respondent, thus kept in the dark, answers in the affirmative to each of your questions successively. At length you find that you have obtained a sufficient number of concessions from him,

[a] Topic. VIII. i. p. 155, b. 20.

[b] Ibid. b. 26.

[c] Ibid. b. 34: *ἂν δὲ μὴ τιθῇ, δι' ἐπαγωγῆς ληπτέον, προτείναντα ἐπὶ τῶν κατὰ μέρος ἐναντίων.*

[d] Ibid. p. 156, a. 7: *κρύπτοντα δὲ προσυλλογίζεσθαι δι' ὧν ὁ συλλογισμὸς τοῦ ἐξ ἀρχῆς μέλλει γίνεσθαι, καὶ ταῦτα ὡς πλεῖστα.*

[e] Ibid. a. 23: *χρήσιμον δὲ καὶ τὸ μὴ συνεχῆ τὰ ἀξιώματα λαμβάνειν ἐξ ὧν οἱ συλλογισμοί, ἀλλ' ἐναλλὰξ τὸ πρὸς ἕτερον καὶ ἕτερον συμπέρασμα.*

to enable you to prove the syllogism contradictory of his thesis. You inform him of this; and it shows the perfect skill and success of your procedure, when he expresses surprise at the announcement, and asks on what premisses you reckon.[a]

There are also other manœuvres serving your purpose of concealment, and preventing the respondent from seeing beforehand the full pertinence of your questions. Thus, if you wish to obtain the definition of your major, you will do well to ask the definition, not of the term itself but, of some one among its conjugates. You will put your question, as if the answer were of little importance in itself, and as if you did not care whether it was given in the affirmative or in the negative;[b] you will sometimes even suggest objections to that which you are seeming to aim at. All this will give you the air of a candid disputant; it will throw the respondent off his guard, and make him more ready to answer as he really thinks, without alarm for the consequences.[c] When you wish to get a certain premiss conceded, you will put the question first upon a different premiss analogous to it. In putting your question, you will add that the answer which you desire is a matter of course, familiar and admitted by every one; for respondents are shy of contradicting any received belief, unless they have present to their minds a clear instance adverse to it.[d] You will never manifest apparent earnestness about an answer; which would make the respondent less willing to concede it.[e] You will postpone until the last the premiss which you wish to obtain, and will begin by putting questions the answers to which serve as remote premisses behind it, only in the end conducting to it as consequence. Generally speaking, questioners do the reverse, putting first the questions about which they are most anxious; while most respondents, aware of this habit, are most intractable in regard to the first questions, except some presumptuous and ill-tempered disputants, who concede what is asked at first but afterwards become obstinate in denegation.[f] You will throw in some irrelevant questions with a view to lengthen the procedure, like

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[a] Topic. VIII. i. p. 156, a. 13: *καθόλου δ' εἰπεῖν, οὕτω δεῖ ἐρωτᾶν τὸν κρυπτικῶς πυνθανόμενον, ὥστ' ἠρωτημένου τοῦ παντὸς λόγου καὶ εἰπόντος τὸ συμπέρασμα ζητεῖσθαι τὸ διὰ τί.*

[b] Ibid. b. 6: *ἁπλῶς δ' εἰπεῖν, ὅτι μάλιστα ποιεῖν ἄδηλον, πότερον τὸ προτεινόμενον ἢ τὸ ἀντικείμενον βούλεται λαβεῖν· ἀδήλου γὰρ ὄντος τοῦ πρὸς τὸν λόγον χρησίμου, μᾶλλον τὸ δοκοῦν αὑτοῖς τιθέασιν.*

[c] Ibid. b. 18; *δεῖ δὲ καὶ αὑτόν ποτε αὑτῷ ἔνστασιν φέρειν· ἀνυπόπτως γὰρ ἔχουσιν οἱ ἀποκρινόμενοι πρὸς τοὺς δοκοῦντας δικαίως ἐπιχειρεῖν.*

[d] Ibid. b. 10, 20: *χρήσιμον δὲ καὶ τὸ ἐπιλέγειν ὅτι σύνηθες καὶ λεγόμενον τὸ τοιοῦτον· ὀκνοῦσι γὰρ κινεῖν τὸ εἰωθός, ἔνστασιν μὴ ἔχοντες.*

[e] Ibid. b. 23: *ἔτι τὸ μὴ σπουδάζειν.*

[f] Ibid. b. 30-39; *καὶ τὸ ἐπ' ἐσχάτῳ ἐρωτᾶν ὃ μάλιστα βούλεται λαβεῖν·* &c.

fallacious geometers who complicate a diagram by drawing unnecessary lines. Amidst a multitude of premisses falsehood is more likely to escape detection; and thus, also, you may perhaps be able to slip in, unperceived and in a corner, some important premiss, which, if put as a separate question by itself, would certainly not have been granted.[a]

Such are the multifarious suggestions addressed by Aristotle to the questioner for concealing his method of attack;[b] Concealment being the third of the four general heads relating to the treatment of premisses not immediately necessary for proof of the final refutative conclusion. On the other three general heads—Induction from particulars to an universal, Dignity, Clearness—Aristotle goes into less detail. For Clearness, he recommends that examples should be introduced; especially familiar examples, taken from well-known poets like Homer, not from obscure poets like Chœrilus.[c]

In regard to Induction, Aristotle points out an embarrassment often arising from the want of suitable universal names. When, after having obtained an affirmative answer about several similar particulars, you wish to put a question generalizing the result, you will sometimes find no universal term fitting the position. You are obliged to say: Will it not be so in all such cases? and this lets in a serious difficulty, how to know what other cases are like, and what are not. Here the respondent will often dispute your right to include this or that other particular.[d] You will do well to coin a new universal term fitting the situation.

If the respondent answers in the affirmative to several questions of similar particulars, but answers in the negative when you sum them up in an universal comprehending all similar cases,—you may require him to cite some particular case justifying his denial; though you cannot require him to do this before he has made the affirmative answers.[e] It is not sufficient that he should cite, as the single case of exception, the express case which forms the subject of the thesis. He ought to produce some distinct and independent instance, really comprised within the genus, and not merely connected with it by the link of an equivocal term.[f] If he produces an adverse instance really com-

[a] Topic. VIII. i. p. 157, a. 1-5: ἔτι τὸ μηκύνειν καὶ παρεμβάλλειν τὰ μηδὲν χρήσιμα πρὸς τὸν λόγον, καθάπερ οἱ ψευδογραφοῦντες· πολλῶν γὰρ ὄντων ἄδηλον ἐν ὁποίῳ τὸ ψεῦδος. διὸ καὶ λανθάνουσιν ἐνίοτε οἱ ἐρωτῶντες ἐν παραβύστῳ προστιθέντες ἃ καθ' αὑτὰ προτεινόμενα οὐκ ἂν τεθείη.

[b] Ibid. a. 6: εἰς μὲν οὖν κρύψιν τοῖς εἰρημένοις χρηστέον, &c.

[c] Ibid. a. 14.

[d] Ibid. ii. p. 157, a. 18-33. διὸ πειρατέον ἐπὶ πάντων τῶν τοιούτων ὀνοματοποιεῖν αὐτόν, &c.

[e] Ibid. a. 34-37.

[f] Ibid. a. 37-b. 8.

prised within the genus, you may perhaps be able to re-model your question, so as to make reserve for the basis on which this objection is founded. The respondent will then be compelled (unless he can foresee some new case of objection) to concede the universal with this special qualification; so that you will have gained all that you really require. Should the respondent continue to refuse, without producing any new case, he will transgress the rules of Dialectic; which recognize an universal affirmative, wherever there are numerous affirmative particulars without one assignable negative.[a] Indeed, if you know the universal to hold in many particular cases, and do not know of any others adverse, you may boldly put your question at once in reference to the universal (without going first through the series of particulars). The respondent will hardly venture to deny it, not having in his mind any negative particulars.[b]

You must however keep in mind what a dialectic universal premiss really is. Not every question requiring an universal answer is allowed to be put. You must not ask for positive information, nor put such questions as the following: What is man? In how many different senses is good employed? A dialectic question is one to which the respondent makes sufficient reply by saying, Yes or No.[c] You must ask in this form: Is the definition of man so and so? Is good enunciated in this or that different sense? To these questions the respondent may answer Yes or No. But if he persists in negative answers to your multiplied questions as to this or that sense of the term good, you may perhaps stand excused for asking him: "In how many different senses, then, do you yourself use the term good?"[d]

When you have obtained concessions which furnish premisses for a formal syllogism, you will draw out and propound that syllogism and its conclusion forthwith, without asking any farther question from the respondent or any leave from him to do so. He may indeed deny your right to do this, in spite of the concessions which he has made; and the auditors around, not fully appreciating all his concessions, may perhaps think that he is entitled to deny it. But, if you ask his leave to draw out the syllogism and he refuses to give leave, the auditors are much more likely to think that your syllogism is not allowable.[e] If

[a] Topic. VIII. xi. p. 157, b. 8-33. διαλεκτικὴ γάρ ἐστι πρότασις πρὸς ἣν οὕτως ἐπὶ πολλῶν ἔχουσαν μὴ ἔστιν ἔνστασις.

[b] Ibid. p. 158, a. 3-6.

[c] Ibid. p. 158, a. 14, seq. ἔστι γὰρ πρότασις διαλεκτικὴ πρὸς ἣν ἔστιν ἀποκρίνασθαι ναὶ ἢ οὔ.

[d] Ibid. a. 21-24.

[e] Ibid. a. 7-12: οὐ δεῖ δὲ τὸ συμπέρασμα ἐρώτημα ποιεῖν· εἰ δὲ μή, ἀνανεύσαντος οὐ δοκεῖ γεγονέναι συλλογισμός.

you have the choice between an ostensive syllogism and a *Reductio ad Absurdum*, you ought always to prefer the former, as plainer and more incontestable.[a]

You must not persevere long in the same line of questions. For, if the respondent answers them all, it will soon appear that you are in the wrong course, since your syllogism, if you can get one at all, will always be obtained from a small number of premisses; and, if the respondent will not answer them, you have no alternative except to protest and desist.[b]

The theses that are most difficult to attack are also most easy to defend; and these are the highest universals, and the lowest particulars. The highest you cannot deal with, unless you can get a definition of them; which is sometimes impossible and always difficult; since the respondent will neither define them himself nor accept your definitions. Those which are next to the highest are also difficult to impugn, because there are few intermediate steps of proof. Again, the lowest particulars are also difficult for the contrary reason, that there are so many intermediate steps, and it is tedious to enumerate them all continuously; while, if any are omitted, the demonstration is incomplete, and the procedure will appear sophistical.[c] The most difficult of all to impugn are definitions framed in vague and unintelligible terms, where you do not know whether they are univocal or equivocal, literal or metaphorical. When the thesis tendered to you presents such difficulty, you may presume that it is affected with the obscurity of terms here indicated; or, at any rate, that its terms stand in need of definition.[d] In geometrical construction, as well as in dialectical debate, it is indispensable that the *principia* or primary terms should be defined, and defined properly; without this, neither the one nor the other can be pursued.[e]

Sometimes the major and minor premisses of your syllogistic conclusion are more difficult to establish—more beyond the level of average intelligence—than the thesis itself. In such a case some may think that the respondent ought to grant these premisses, because, if he refuses and requires them to be proved, he will be imposing upon the questioner a duty more arduous than the thesis itself imposes; others may say that he ought not to grant them, because, if he did, he would be acknowledging a conclusion derived from premisses requiring proof as much or

[a] Topic. VIII. ii. p. 158, b. 34-p. 159, a. 2.
[b] Ibid. p. 158, a. 25-30.
[c] Ibid. iii. p. 158, a. 31, seq. ἢ σοφισματώδη φαίνεται τὰ ἐπιχειρήματα.
[d] Ibid. iii. p. 158, b. 8-23: p. 159, a. 3: οὔκουν δεῖ λανθάνειν, ὅταν δυσεπιχείρητος ᾖ ἡ θέσις, ὅτι πέπονθέ τι τῶν εἰρημένων.
[e] Ibid. p. 158, b. 24-p. 159, a. 2.

more than itself.[a] A distinction must here be made. If you are putting questions with a view to teach, the learner ought not to grant such premisses as those above described, because he is entitled to require that in every step of the process he shall be conducted from what is more knowable to what is less knowable. Accordingly, when you attempt to demonstrate to him something which he knows little, by requiring him to concede something which he knows still less, he cannot be advised to grant what you ask. But, if you are debating with a companion for the purpose of dialectical exercise, he ought to grant what you ask whenever the affirmative really appears to him true.[b]

We have now said enough for the purpose of instructing the questioner how to frame and marshal his interrogations. We must turn to the respondent, and point out how *he* must answer in order to do well and perform his duty to the common work of dialogue. Speaking generally, the task of the questioner is to conduct the dialogue so as to make the respondent enunciate the most improbable and absurd replies which follow necessarily from the thesis that he has undertaken to defend; while the task of the respondent is to make it appear that these absurdities follow from the thesis itself, and not from his manner of defending it. The respondent may err in one of two ways, or indeed in both together: either he may set up an indefensible thesis; or he may fail to defend it in the best manner that it really admits; or he may do both. The second is a worse error than the first, in reference to the general purpose of Dialectic.[c]

Aristotle distinguishes (as has been already stated) three purposes in the dialogue:—(1) Teaching and Learning; (2) Contention, where both questioner and respondent strive only for victory; (3) Investigating and Testing the consequences of some given doctrine.[d] The first two of these three are dismissed rapidly. In the first, the teaching questioner has no intention of deceiving, and the pupil respondent has only to answer by granting all that appears to him true.[e] In the second, Aristotle tells us only that the questioner must always appear as if he

[a] Topic. VIII. iii. p. 159, a. 4-11. ὅταν δ' ᾖ πρὸς τὸ ἀξίωμα καὶ τὴν πρότασιν μεῖζον ἔργον διαλεγῆναι ἢ τὴν θέσιν, διαπορήσειεν ἄν τις πότερον θετέον τὰ τοιαῦτα ἢ οὔ· &c.

[b] Ibid. a. 11-14: ἢ τῷ μὲν μανθάνοντι οὐ θετέον, ἂν μὴ γνωριμώτερον ᾖ, τῷ δὲ γυμναζομένῳ θετέον, ἂν ἀληθὲς μόνον φαίνηται. ὥστε φανερὸν ὅτι οὐχ ὁμοίως ἐρωτῶντί τε καὶ διδάσκοντι ἀξιωτέον τιθέναι.

This section is obscure and difficult. I am not sure that I understand it. It seems doubtful whether the verb τιθέναι is intended to apply to the questioner or to the respondent.

[c] Ibid. iv. p. 159, a. 15-24: τοῦ δ' ἀποκρινομένου τὸ μὴ δι' αὐτὸν φαίνεσθαι συμβαίνειν τὸ ἀδύνατον ἢ τὸ παράδοξον, ἀλλὰ διὰ τὴν θέσιν· ἑτέρα γὰρ ἴσως ἁμαρτία τὸ θέσθαι πρῶτον ὃ μὴ δεῖ καὶ τὸ θέμενον μὴ φυλάξαι κατὰ τρόπον.

[d] Ibid. v. p. 159, a. 24-28.

[e] Ibid. a. 29: τῷ μὲν γὰρ μανθάνοντι θετέον ἀεὶ τὰ δοκοῦντα· καὶ γὰρ οὐδ' ἐπιχειρεῖ ψεῦδος οὐδεὶς διδάσκειν.

were making some point of his own; while the respondent, on his side, must always appear as if no point were made against him.[a] But in regard to the third head—dialogues of Search, Testing, Exercise—he is more copious in suggestions: he considers these as the proper field of Dialectic, and, as we saw, claims to have been the first who treated them apart from the didactic dialogues on one side, and the contentious on the other.[b]

The thesis which the respondent undertakes to defend (in a dialogue of Search or Testing) must be either probable, or improbable, or neither one nor the other. The probability or improbability may be either simple and absolute, or special and relative—in the estimation of the respondent himself or of some one or more persons. Now, if the thesis be improbable, the opposite thereof, which you the questioner try to prove, must be probable; if the thesis be probable, the opposite thereof must be improbable; if the thesis be neither, its opposite will also be neither. Suppose, first, that the thesis is improbable absolutely. In that case, its opposite, which you the questioner must fish for premisses to prove, will be probable; the respondent therefore ought not to grant you any demand which is either simply improbable or less probable than the conclusion which you aim at proving; for no such concessions can really serve your purpose, since you are bound to prove your conclusion from premisses more probable than itself.[c] Suppose, next, that the thesis is probable absolutely. In that case, the opposite conclusion, which you have to make out, will be improbable absolutely. Accordingly, whenever you ask concessions that are probable, the respondent ought to grant them; whenever you ask for concessions that are less improbable than your intended conclusion, he ought to grant these also; but, if you ask for any thing more improbable than your intended conclusion, he ought to refuse it.[d] Suppose, thirdly, that the thesis is neither probable nor improbable. Here, too, the respondent ought to grant all concessions that appear to him probable, as well as all that he thinks more probable than the opposite conclusion which you

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[a] Topic. VIII. iv. p. 159, a. 30: *τῶν δ' ἀγωνιζομένων τὸν μὲν ἐρωτῶντα φαίνεσθαί τι δεῖ ποιεῖν πάντως, τὸν δ' ἀποκρινόμενον μηδὲν φαίνεσθαι πάσχειν.*

[b] Ibid. a. 32-37: xi. p. 161, a. 23-25: *δυσκολαίνοντες οὖν ἀγωνιστικὰς καὶ οὐ διαλεκτικὰς ποιοῦνται τὰς διατριβάς· ἔτι δ' ἐπεὶ γυμνασίας καὶ πείρας χάριν ἀλλ' οὐ διδασκαλίας οἱ τοιοῦτοι τῶν λόγων.* &c.

[c] Ibid. v. p. 159, b. 9: *φανερὸν ὡς ἀδόξου μὲν ὄντος ἁπλῶς τοῦ κειμένου οὐ δοτέον τῷ ἀποκρινομένῳ οὔθ' ὃ μὴ δοκεῖ ἁπλῶς, οὔθ' ὃ δοκεῖ μέν ἧττον δὲ τοῦ συμπεράσματος δοκεῖ. ἀδόξου γὰρ οὔσης τῆς θέσεως ἔνδοξον τὸ συμπέρασμα, ὥστε δεῖ τὰ λαμβανόμενα ἔνδοξα πάντ' εἶναι καὶ μᾶλλον ἔνδοξα τοῦ προκειμένου, εἰ μέλλει διὰ τῶν γνωριμωτέρων τὸ ἧττον γνώριμον περαίνεσθαι. ὥστ' εἴ τι μὴ τοιοῦτόν ἐστι τῶν ἐρωτωμένων, οὐ θετέον τῷ ἀποκρινομένῳ.*

[d] Ibid. b. 16.

are seeking to arrive at; but no others. This is sufficient for the purpose of Dialectic, and for keeping open the lines of probable argument.[a]

When the probability or improbability of the thesis is considered simply and absolutely, the respondent ought to measure his concessions by the standard of opinion received usually.[b] When the probability or improbability of the thesis is considered as referable to the respondent himself, he has only to consult his own judgment and estimation in granting or refusing what is asked. When he undertakes to defend a thesis avowedly as the doctrine of some known philosopher, such as Herakleitus, he must, in giving his answers, measure probability and improbability according to what Herakleitus would determine.[c]

Since all the questions that you ask must be either probable, improbable, or neuter, and either relevant[d] or not relevant to your purpose of refuting the thesis, let us first suppose that you ask for a concession which is in itself probable, but not relevant. The respondent ought to grant it, adding that he thinks it probable. If what you ask is neither probable nor relevant, he ought even then to grant it; but annexing a notification that he is aware of its improbability, in order to save his own credit for intelligence.[e] If it be both probable and relevant, he ought to say that he is aware of its probability, but that it is too closely connected with the thesis, and that, if he grants it, the thesis will stand refuted. If it be relevant, yet at the same time very improbable, he must reply that, if he grants it, the thesis will be refuted, but that it is too silly to be propounded. If, being neutral, it is also not relevant, he ought to grant it without comment; but if, being neutral, it is relevant, he ought to notify that he is aware that by granting it his thesis will be refuted.[f]

In this way of proceeding, the march of the dialogue on both sides will be creditable. The respondent, signifying plainly that he understands the full consequences of his own concessions, will not appear to be worsted through any short-comings of his

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[a] Topic. VIII. v. p. 159, b. 19-23: *ἱκανῶς γὰρ ἂν δόξειε διειλέχθαι—οὕτω γὰρ ἐνδοξοτέρους συμβήσεται τοὺς λόγους γινεσθαι.*

[b] Ibid. b. 24: *πρὸς τὰ δοκοῦντα ἁπλῶς τὴν συγκρισιν ποιητέον.*

[c] Ibid. b. 25-35. *πρὸς τὴν ἐκείνου διάνοιαν ἀποβλέποντα θετέον ἕκαστα καὶ ἀρνητέον.*

[d] Ibid. vi. p. 159, b. 39: *ἢ πρὸς τὸν λόγον, ἢ μὴ πρὸς τὸν λογον.* By this phrase Aristotle seems to mean, not simply relevant, but closely, directly, conspicuously relevant—equivalent to *λίαν συνεγγὺς τοῦ ἐν ἀρχῇ* (p. 160, a. 5).

[e] Ibid. b. 36-p. 160, a. 2. *ἐὰν δὲ μὴ δοκοῦν καὶ μὴ πρὸς τὸν λόγον, δοτέον μέν, ἐπισημαντέον δὲ τὸ μὴ δοκοῦν πρὸς εὐλάβειαν εὐηθείας.*

How is this to be reconciled with what Aristotle says in the preceding chapter, p. 159, b. 11-18, that the respondent ought not to grant such improbabilities at all?

[f] Ibid. p. 160, a. 6-11.

own, but only through what is inherent in his thesis; while you the questioner, having asked for such premisses as are really more probable than the conclusion to be established, and having had them granted, will have made out your point. It must be understood that you ought not to try to prove your conclusion from premisses less probable than itself; and that, if you put questions of this sort, you transgress the rules of dialectical procedure.[a]

If you ask a dialectical question in plain and univocal language, the respondent is bound to answer Yes or No. But if you ask it in terms obscure or equivocal, he is not obliged to answer thus directly. He is at liberty to tell you that he does not understand the question; he ought to have no scruple in telling you so, if such is really the fact. Suppose the terms of your question to be familiar, but equivocal; the answer to it may perhaps be either true or false, alike in all the different senses of the terms. In that case, the respondent ought to answer Yes or No directly. But, if the answer would be an affirmation in one sense of the terms and a negation in another, he must take care to signify that he is aware of the equivocation, and to distinguish at once the two-fold meaning; for, if the distinction is not noticed till afterwards, he cannot clearly show that he was aware of it from the first. If he really was not at first aware of the equivocation, and gave an affirmative answer looking only to one among the several distinct meanings, you will try to convict him of error by pushing him on the other meaning. The best thing that he can then do will be to confess his oversight, and to excuse himself by saying that misconception is easy where the same term or the same proposition may mean several different things.[b]

Suppose you put several particular questions (or several analogous questions) with the view of arriving ultimately by induction at the concession of an universal, comprising them all. If they are all both true and probable, the respondent must concede them all severally; yet he may still intend to answer No, when the universal is tendered to him after them. He has no right to answer thus, however, unless he can produce some contradictory particular instance, real or apparent, to justify him; and, if he does so without such justification, he is a perverse

[a] Topic. VIII. vi. p. 160, a. 11-16. οὕτω γὰρ ὅ τ' ἀποκρινόμενος οὐδὲν δόξει δι' αὑτὸν πάσχειν, ἐὰν προορῶν ἕκαστα τιθῇ, ὅ τ' ἐρωτῶν τεύξεται συλλογισμοῦ τιθεμένων αὐτῷ πάντων τῶν ἐνδοξοτέρων τοῦ συμπεράσματος. ὅσοι δ' ἐξ ἀδοξοτέρων τοῦ συμπεράσματος ἐπιχειροῦσι συλλογίζεσθαι, δῆλον ὡς οὐ καλῶς συλλογίζονται· διὸ τοῖς ἐρωτῶσιν οὐ θετέον.

[b] Ibid. vii. p. 160, a. 17-34.

dialectician.[a] Perhaps he may try to sustain his denegation of the universal, after having conceded many particulars, by a counter-attack founded on some chain of paradoxical reasoning such as that of Zeno against motion; there being many such paradoxes contradictory of probabilities, yet hard to refute. But this is no sufficient justification for refusing to admit the universal, when, after having admitted many particulars, he can produce no particular adverse to them. The case will be still worse, if he refuses to admit the universal, having neither any adverse instance, nor any counter-ratiocinative attack. It is then the extreme of perverse Dialectic.[b]

Before the respondent undertakes to defend any thesis or definition, he ought to have previously studied the various modes of attacking it, and to have prepared himself for meeting them.[c] He must also be cautious of taking up improbable theses, in either of the senses of improbable. For a thesis is so called when it involves strange and paradoxical developments, as if a man lays down either that every thing is in motion or that nothing is in motion; and also, when it implies a discreditable character and is contrary to that which men wish to be thought to hold, as, for example, the doctrine that pleasure is the good, or that it is better to do wrong than to suffer wrong. If a man defends such theses as these, people hate him because they presume that he is not merely propounding them as matter for dialectical argument, but advocating them as convictions of his own.[d]

The respondent must farther be able, if you bring against him a false syllogistic reasoning, to distinguish upon which among your premisses the false conclusion really turns, and to refute that one. Your reasoning may have more than one false premiss; but he must not content himself with refuting any one or any other: he must single out that one which is the chief determining cause of the falsehood. Thus, if your syllogism be:— Every man in a sitting position is writing, Sokrates is a man in a sitting position; therefore, Sokrates is writing,—it will not suffice that the respondent should refute your minor premiss,

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[a] Topic. VIII. viii. p. 160, b. 2-5: τὸ γὰρ ἄνευ ἐνστάσεως, ἢ οὔσης ἢ δοκούσης, κωλύειν τὸν λόγον δυσκολαίνειν ἐστίν. εἰ οὖν ἐπὶ πολλῶν φαινομένου μὴ δίδωσι τὸ καθόλου μὴ ἔχων ἔνστασιν, φανερὸν ὅτι δυσκολαίνει.

[b] Ibid. b. 5, seq.; ἔτι εἰ μηδ' ἀντεπιχειρεῖν ἔχει ὅτι οὐκ ἀληθές, πολλῷ μᾶλλον ἂν δόξειε δυσκολαίνειν. καίτοι οὐδὲ τοῦθ' ἱκανόν· πολλοὺς γὰρ λόγους ἔχομεν ἐναντίους ταῖς δόξαις, οὓς χαλεπὸν λύειν, καθάπερ τὸν Ζήνωνος ὅτι οὐκ ἐνδέχεται κινεῖσθαι οὐδὲ τὸ στάδιον διελθεῖν· ἀλλ' οὐ διὰ τοῦτο τἀντικείμενα τούτοις οὐ θετέον.

[c] Ibid. ix. p. 160, b. 14.

[d] Ibid. b. 17-22: ἄδοξον δ' ὑπόθεσιν εὐλαβητέον ὑπέχειν· εἴη δ' ἂν ἄδοξος διχῶς· &c.

though this may be false;[a] because such a refutation will not apply to the number of other cases in which men are sitting but not writing; and therefore it will not expose the full bearing of the falsehood. Your major premiss is that upon which the full bearing of the falsehood depends; and the respondent must show that he is aware of this by refuting your major.[b]

This last-mentioned proceeding—refutation of that premiss upon which your false conclusion in its full bearing really turns—is the only regular, valid, and complete objection whereby the respondent can stop out your syllogistic approaches. There are indeed three other modes of objection to which he may resort; but these are all either inconclusive or unfair. He may turn his objection against you personally; and, without refuting any of your premisses, he may thus perplex and confuse you, so that you are disqualified from pursuing the thread of your questions. Or he may turn his objections against portions of your questions; not refuting any one of your premisses, but showing that, as they stand, they are insufficient to warrant the conclusion which you seek to establish; when, if you are master of your subject, and retain your calmness, you will at once supply the deficiency by putting additional questions, so that his objection thus vanishes. Or, lastly, he may multiply irrelevant objections against time, for the purpose of prolonging the discussion and tiring you out.[c] Of these four modes of objection open to the respondent the first is the only one truly valid and conclusive; the three others are obstructions either surmountable or unfair, and the last is the most discreditable of all.[d]

To blame the argumentative procedure and to blame the questioner are two distinct things. Perhaps your manner of conducting the interrogation, preparatory to your final syllogism, may be open to censure; yet nevertheless you the questioner may deserve no censure; for it may be the respondent's fault, not yours. He may refuse to grant the very premisses which are essential to the good conduct of your case; he may resort to perverse evasions and contradictions for the mere purpose of

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[a] Topic. VIII. x. p. 160, b. 23-26. *οὐ γὰρ ὁ ὁτιοῦν ἀνελὼν λέλυκεν, οὐδ' εἰ ψεῦδός ἐστι τὸ ἀναιρούμενον· ἔχοι γὰρ ἂν πλείω ψευδῆ ὁ λόγος.*

[b] Ibid. b. 30-39. *οἶδε δὲ τὴν λύσιν ὁ εἰδὼς ὅτι παρὰ τοῦτο ὁ λόγος—οὐ γὰρ ἀπόχρη τὸ ἐνστῆναι, οὐδ' ἂν ψεῦδος ᾖ τὸ ἀναιρούμενον, ἀλλὰ καὶ διότι ψεῦδος ἀποδεικτέον· οὕτω γὰρ ἂν εἴη φανερὸν πότερον προορῶν τι ἢ οὐ ποιεῖται τὴν ἔνστασιν.*

[c] Ibid. p. 161, a. 1-12: *ἔστι δὲ λόγον κωλῦσαι συμπεράνασθαι τετραχῶς. ἢ γὰρ ἀνελόντα παρ' ὃ γίνεται τὸ ψεῦδος. ἢ πρὸς τὸν ἐρωτῶντα ἔνστασιν εἰπόντα·—τρίτον δὲ πρὸς τὰ ἠρωτημένα·—τετάρτη δὲ καὶ χειρίστη τῶν ἐνστάσεων ἡ πρὸς τὸν χρόνον.*

[d] Ibid. a. 13-15: *αἱ μὲν οὖν ἐνστάσεις, καθάπερ εἴπαμεν, τετραχῶς γίνονται· λύσις δ' ἐστὶ τῶν εἰρημένων ἡ πρώτη μονον, αἱ δὲ λοιπαὶ κωλύσεις τινὲς καὶ ἐμποδισμοὶ τῶν συμπερασμάτων.*

thwarting you; so that you are forced to adapt yourself to his unworthy manœuvres rather than to aim at the thesis itself. Dialectic cannot be well conducted unless both the partners do their duty to the common purpose; the bad conduct of your respondent puts you out, and the dialectic presently degenerates on both sides into angry contention.[a] Apart from this, too, it must be remembered that the express purpose of Dialectic is not to teach, but to search and test consequences and to exercise the intellect of both parties. Accordingly you are not always restricted to true syllogistic premisses and conclusions. You are allowed to resort occasionally to false premisses and false conclusions; for, if what the respondent advances be true, you have no means of refuting it except by falsehood; and, if what he advances be false, the best way of refuting it may be through some other falsehood.[b] You render service to him by doing so; for, since his beliefs are contrary to truth, if the dialogue is confined to his beliefs, the result may perhaps contribute to persuade him, but it will not instruct or profit him.[c] It is your business to bring him round and emancipate him from these erroneous beliefs; but you must accomplish this in a manner truly dialectical, and not contentious; whether you proceed by true or by false conclusions.[d] If you on your side, indeed, put questions in a contentious spirit, it is you that are to blame. But often the respondent is most to blame, when he refuses to grant what he thinks probable, and when he does not apprehend what you really intend to ask.[e] He is sometimes also to blame for granting what he ought to refuse; such as *Petitio Principii* or Affirmation of Contraries. It is often difficult to distinguish what questions involve *Petitio Principii* or Affirmation of Contraries: they are asked and granted without either party being aware, and the like mistake is committed by men in private talk, not merely in formal dialogue. When this happens, the argument will inevitably be a bad one; but the fault is with the

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[a] Topic. VIII. xi. p. 161, a. 16-24. δυσκολαίνοντες οὖν ἀγωνιστικὰς καὶ οὐ διαλεκτικὰς ποιοῦνται τὰς διατριβάς. a. 37: φαῦλος κοινωνὸς ὁ ἐμποδίζων τὸ κοινὸν ἔργον.

[b] Ibid. a. 24-31: ἔτι δ' ἐπεὶ γυμνασίας καὶ πείρας χάριν ἀλλ' οὐ διδασκαλίας οἱ τοιοῦτοι τῶν λόγων, δῆλον ὡς οὐ μόνον τἀληφῆ συλλογιστέον ἀλλὰ καὶ ψεῦδος, οὐδὲ δι' ἀληθῶν ἀεὶ ἀλλ' ἐνίοτε καὶ ψευδῶν. πολλάκις γὰρ ἀληθοῦς τεθέντος ἀναιρεῖν ἀνάγκη τὸν διαλεγόμενον, ὥστε προτατέον τὰ ψευδῆ. ἐνίοτε δὲ καὶ ψεύδους τεθέντος ἀναιρετέον διὰ ψευδῶν.

[c] Ibid. a. 30: οὐδὲν γὰρ κωλύει τινὶ δοκεῖν τὰ μὴ ὄντα μᾶλλον τῶν ἀληθῶν, ὥστ' ἐκ τῶν ἐκείνῳ δοκούντων τοῦ λόγου γενομένου μᾶλλον ἔσται πεπεισμένος ἢ ὠφελημένος.

[d] Ibid. a. 33: δεῖ δὲ τὸν καλῶς μεταβιβάζοντα διαλεκτικῶς καὶ μὴ ἐριστικῶς μεταβιβάζειν. About τὸ μεταβιβάζειν, compare Topica, I. ii. p. 101, a. 33.

[e] Ibid. b. 2: ὅ τε γὰρ ἐριστικῶς ἐρωτῶν φαύλως διαλέγεται, ὅ τ' ἐν τῷ ἀποκρίνεσθαι μὴ διδοὺς τὸ φαινόμενον μηδ' ἐκδεχόμενος ὅ τί ποτε βούλεται ὁ ἐρωτῶν πυθέσθαι.

respondent who, having before refused what he ought to have granted, now grants what he ought to refuse.[a]

Such then are the cases in which the conduct of the dialogue is open to censure, without any fault on your part as questioner. But there are other cases in which the fault is really yours. These are five in number:—(1) When all or most of your questions are so framed as to elicit premisses either false or improbable, so that neither the conclusion which you seek to obtain, nor any other conclusion at all, follows from them; (2) When, from similar defects, the proper conclusion that you seek to obtain cannot be drawn from your premisses; (3) When that proper conclusion would follow, if certain additions were made to your premisses, but such additions are of a character worse than the premisses already obtained, and are even less probable than the conclusion itself; (4) When you have accumulated a superfluous multitude of premisses, so that the proper conclusion does not follow from all of them but from a part of them only; (5) When your premisses are more improbable and less trustworthy than the proper conclusion, or when, though true, they are harder and more troublesome to prove than the problem itself.[b]

In regard to the last item, however, the fault may sometimes be in the problem itself rather than in you as questioner. Some problems, being in their own nature hard and not to be settled from probable or plausible data, ought not to be admitted into Dialectic. All that can be required from you as questioner is that you shall know and obtain the most probable premisses that the problem admits: your procedure may be thus in itself blameable, yet it may even deserve praise, having regard to the problem, if this last be very intractable; or it may be in itself praiseworthy, yet blameable in regard to the problem, if the problem admit of being settled by premisses still more probable.[c] You may even be more blameable, if you obtain your conclusion but obtain it from improbable premisses, than if you failed to obtain it; the premisses required to make it complete being true and probable and not of capital importance, but being refused by the respondent.[d] However, you ought not

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[a] Topic. VIII. xi. p. 161, b. 11-18: *ἐπεὶ δ' ἐστὶν ἀδιόριστον πότε τἀναντία καὶ πότε τὰ ἐν ἀρχῇ λαμβάνουσιν οἱ ἄνθρωποι (πολλάκις γὰρ καθ' αὑτοὺς λέγοντες τἀναντία λέγουσι, καὶ ἀνανεύσαντες πρότερον διδόασιν ὕστερον· διόπερ ἐρωτώμενοι τἀναντία καὶ τὸ ἐν ἀρχῇ πολλάκις ὑπακούουσιν)—ἀνάγκη φαύλους γίνεσθαι τοὺς λόγους. αἴτιος δ' ὁ ἀποκρινόμενος, τὰ μὲν οὐ διδούς, τὰ δὲ τοιαῦτα διδούς.*

This passage is not very clear.

[b] Ibid. b. 19-33: *καθ' αὑτὸν δὲ τῷ λόγῳ πέντε εἰσὶν ἐπιτιμήσεις.*

[c] Ibid. b. 34-p. 162, a. 3

[d] Ibid. p. 162, a. 3-8.

to be blamed if you obtain your true and proper conclusion but obtain it through premisses in themselves false; for this is recognized in analytical theory as possible: if the conclusion is false, the premisses (one or both) must be false, but a true conclusion may be drawn from false premisses.[a]

When you have obtained your premisses and proved a conclusion, these same premisses will not serve as proof of any other proposition separate and independent of the conclusion; such may sometimes seem to be the case, but it is a mere sophistical delusion. If your premisses are both of them probable, your conclusion may in some cases be more probable than either.[b]

One other matter yet remains in which your procedure as questioner may be blameable. The premisses through which you prove your conclusion may be long and unnecessarily multiplied; the conclusion may be such that you ought to have obtained it through fewer, yet equally pertinent premisses.[c]

The cases in which your argument will carry the clearest evidence, impressing itself even on the most vulgar minds, are those in which you obtain such premisses as will enable you to draw your final conclusion without asking any farther concessions. But this will rarely happen. Even after you have obtained all the premisses substantially necessary to your final

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[a] Topic. VIII. xi. p. 162, a. 8-11: *τοῖς δὲ διὰ ψευδῶν ἀληθὲς συμπεραινομένοις οὐ δίκαιον ἐπιτιμᾶν—φανερὸν δ' ἐκ τῶν Ἀναλυτικῶν.*

[b] Ibid. a. 12-24.

Aristotle here introduces four definitions of terms, which are useful in regard to his thoughts but have no great pertinence in the place where they occur: *ἔστι δὲ φιλοσόφημα μὲν συλλογισμὸς ἀποδεικτικός, ἐπιχείρημα δὲ συλλογισμὸς διαλεκτικός, σόφισμα δὲ συλλογισμὸς ἐριστικός, ἀπόρημα δὲ συλλογισμὸς διαλεκτικὸς ἀντιφάσεως.*

[c] Ibid. a. 24-34.

The example whereby Aristotle illustrates this position is obscure and difficult to follow. It is borrowed from the Platonic theory of Ideas. The point which you are supposed to be anxious to prove is, that one opinion is more opinion than another (*ὅτι ἐστὶ δόξα μᾶλλον ἑτέρα ἑτέρας*). To prove it you ask as premisses: (1) That the Idea of every class of things is more that thing than any one among the particulars of the class; (2) That there is an Idea of *matter of opinion*, and that this Idea is more opinion than any one of the particular matters of opinion. If this Idea is more opinion, it must also be more true and accurate than any particular matter of opinion. And it is this last conclusion that Aristotle seems to indicate as the conclusion to be proved: *ὥστε αὐτὴ ἡ δόξα ἀκριβεστέρα ἐστίν* (a. 32).

As I understand it, Aristotle supposes that the doctrine which you are here refuting is, that all *ἔνδοξα* are on an equal footing as to truth and accuracy; and that the doctrine which you are proving against it is, that one *ἔνδοξον* is more true and accurate than another. If you attempt to prove this last by invoking the Platonic theory of Ideas, you will introduce premisses far-fetched and unnecessary, even if true; whereas you might prove your conclusion from premisses easier and more obvious.

The fault is (he says) that such roundabout procedure puts out of sight the real ground of the proof: *τίς δὲ ἡ μοχθηρία; ἢ ὅτι ποιεῖ, παρ' ὃ ὁ λόγος, λανθάνειν τὸ αἴτιον* (a. 33). The dubitative and problematical form here is remarkable. How would Aristotle himself have proved the above conclusion? By Induction? He does not tell us.

conclusion, you will generally be forced to draw out two or more prosyllogisms or preliminary syllogisms, and to ask the assent of the respondent to these, before you can venture to enunciate the final conclusion. This second grade of evidence is however sufficient, even if the premisses fall short of the highest probability.[a]

On the other hand, your argument may deserve to be pronounced false on four distinct grounds:—(1) If your syllogism appears to prove the conclusion but does not really prove it, being then an *eristic* or *contentious* syllogism; (2) If the conclusion be good but not revelant to the thesis, which is most likely to happen where you employ *Reductio ad Impossible;* (3) If your conclusion though valid and even relevant, is not founded on the premisses and *principia* appropriate to the thesis; (4) If your premisses are false, even though the conclusion in itself may prove true, since it has already been said that a true conclusion may sometimes be obtained from false premisses.[b]

Falsehood in your argument will be rather your own fault than that of your argument, especially if you yourself are not aware of its falsehood. Indeed, there are some false arguments which are more valuable in Dialectic than many true ones; where, for example, from highly probable premisses you refute some recognized truth. Such an argument is sure to serve as a demonstration of other truths; at the very least, it shows that some one of the propositions concerned is altogether untrue.[c] On the other hand, if you prove a true conclusion by premisses false and improbable, your argument will be more worthless than many others in which the conclusion is false; from such premisses, indeed, the conclusion may well be really false.[d]

In estimating the dialectical value of an argument, therefore, we must first look whether the conclusion is formally valid; next, whether the conclusion is true or false; lastly, what are the premisses from whence it is derived.[e] For, if it be derived from premisses false yet probable, it has logical or dialectical

[a] Topic. VIII. xii. p. 162, a. 35-b. 2.

[b] Ibid. b. 3-15: ψευδὴς δὲ λόγος καλεῖται τετραχῶς, &c.

[c] Ibid. b. 16-22: τὸ μὲν οὖν ψευδῆ τὸν λόγον εἶναι τοῦ λέγοντος ἁμάρτημα μᾶλλον ἢ τοῦ λόγου, καὶ οὐδὲ τοῦ λέγοντος ἀεὶ τὸ ἁμάρτημα, ἀλλ' ὅταν λανθάνῃ αὐτόν, ἐπεὶ καθ' αὑτόν γε πολλῶν ἀληθῶν ἀποδεχόμεθα μᾶλλον, ἂν ἐξ ὅτι μάλιστα δοκούντων ἀναιρῇ τι τῶν ἀληθῶν· τοιοῦτος γὰρ ὢν ἑτέρων ἀληθῶν ἀπόδειξίς ἐστιν· δεῖ γὰρ τῶν κειμένων τι μὴ εἶναι παντελῶς, ὥστ' ἔσται τούτου ἀπόδειξις.

[d] Ibid. b. 22-24.

[e] Ibid. b. 24: ὥστε δῆλον ὅτι πρώτη μὲν ἐπίσκεψις λόγου καθ' αὑτὸν εἰ συμπεραίνεται, δευτέρα δὲ πότερον ἀληθὲς ἢ ψεῦδος· τρίτη δ' ἐκ ποίων τινῶν.

value; while, if derived from premisses true yet improbable, it has none.[a] If derived from premisses both false and improbable, it will of course be worthless; either absolutely in itself, or with reference to the thesis under debate.

Two faults of questioners in Dialectic are dealt with specially by Aristotle:—(1) *Petitio Principii;* (2) *Petitio Contrariorum.* He had touched upon both of them (in the Analytica Priora) as they concerned the demonstrative process, or the proving of truth: he now deals with them as they concern the dialectical process, or the setting out of opinions and probabilities.[b]

Five distinct modes may be enumerated of committing the fault called *Petitio Principii:*—

1. You may put as a question the very conclusion which it is incumbent on you to prove, in refutation of the thesis of the respondent. If this is done in explicit terms, your opponent can hardly fail to perceive it; but he possibly may fail, if you substitute an equivalent term or the definition in place of the term.[c]

2. If the conclusion which you are seeking to prove is a particular one, you may put as a question the universal in which it is comprised. Thus, if you are to prove that the knowledge of Contraries is one and the same, you may put as a question, Is not the knowledge of Opposites one and the same? You are asking the very point which it was your business to show; but you are asking along with it much more besides.[d]

3. If you are seeking to prove an universal conclusion, you you may put as a question one of the particulars comprised therein. Thus, if you are to prove that the knowledge of Contraries is one and the same, you may put as a question, Is not the knowledge of white and black, good and evil, or any other pair of particular contraries, one and the same? It was your business to prove this particular, along with many others besides; but you are now asking it as a question separately.[e]

4. If the conclusion which you are seeking to prove has two terms conjointly, you may put as a question one or the other of these separately. Thus, when you are trying to show that the healing art is knowledge of what is wholesome and unwholesome, you may ask, Is it a knowledge of the wholesome?[f]

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[a] Topic. VIII. xii. p. 162, b. 27: *εἰ μὲν γὰρ ἐκ ψευδῶν ἐνδόξων δέ, λογικός, εἰ δ' ἐξ ὄντων μὲν ἀδόξων δέ, φαῦλος,* &c.

[b] Ibid. xiii. p. 162, b. 31: *τὸ δ' ἐν ἀρχῇ καὶ τὰ ἐναντία πῶς αἰτεῖται ὁ ἐρωτῶν, κατ' ἀλήθειαν μέν ἐν τοῖς Ἀναλυτικοῖς* (Priora, II. xvi.) *εἴρηται, κατὰ δόξαν δὲ νῦν λεκτέον.*

[c] Ibid. b. 34. *πρῶτον εἴ τις αὐτὸ τὸ δείκνυσθαι δέον αἰτήσει· τοῦτο δ' ἐπ' αὐτοῦ μὲν οὐ ῥᾴδιον λανθάνειν, ἐν δὲ τοῖς συνωνύμοις, καὶ ἐν ὅσοις τοὔνομα καὶ ὁ λόγος τὸ αὐτὸ σημαίνει, μᾶλλον.*

[d] Ibid. p. 163, a. 1.

[e] Ibid. a. 5.

[f] Ibid. a. 8.

5. Suppose there are two conclusions necessarily implicated with each other, and that it is your business to prove one of them: you may put as a question the other of the two. Thus, if you are seeking to prove that the diagonal is incommensurable with the side, you may put as a question, Is not the side incommensurable with the diagonal? [a]

There are also five distinct modes of *Petitio Contrariorum*:—

1. You may ask the respondent, in plain terms, to grant first the affirmative, next, the negative, of a given proposition.[b]

2. You may ask him to grant, first, that a given subject is, *e.g.*, good, next, that the same subject is bad.[c]

3. After he has granted to you the affirmative universally, you may ask him to grant the negative in some particular case under the universal: *e.g.*, after he has granted that the knowledge of Contraries is one and the same, you ask him to grant that the knowledge of wholesome and unwholesome is not one and the same. Or you may proceed by the way of reversing this process.[d]

4. You may ask the contrary of that which follows necessarily from the premisses admitted.[e]

5. Instead of asking the two contraries in plain and direct terms, you may ask the two contraries in different propositions, yet necessarily implicated with the first two.[f]

There is this difference between *Petitio Principii*, and *Petitio Contrariorum*: the first has reference to the conclusion which you have to prove, and the wrong procedure involved in it is relative to that conclusion; but in the second the wrong procedure affects only the two propositions themselves and the relation subsisting between them.[g]

Aristotle now, finally, proceeds to give some general advice for exercise and practice in Dialectic. You ought to accustom yourself to treat arguments by converting the syllogisms of which they consist; that is, by applying to them the treatment of which the *Reductio ad Absurdum* is one case.[h] You ought to test every thesis by first assuming it to be true, then assuming it to be false, and following out the consequences on

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[a] Topic. VIII. xiii. p. 163, a. 10.

[b] Ibid. a. 14: *πρῶτον μὲν γὰρ εἴ τις τὰς ἀντικειμένας αἰτήσαιτο φάσιν καὶ ἀντίφασιν.*

[c] Ibid. a. 16: *δεύτερον δὲ τἀναντία κατὰ τὴν ἀντίθεσιν, οἷον ἀγαθὸν καὶ κακὸν ταὐτόν.*

[d] Ibid. a. 17-21.

[e] Ibid. a. 21.

[f] Ibid. a. 22.

[g] Ibid. a. 24: *διαφέρει δὲ τὸ τἀναντία λαμβάνειν τοῦ ἐν ἀρχῇ, ὅτι τοῦ μέν ἐστιν ἡ ἁμαρτία πρὸς τὸ συμπέρασμα (πρὸς γὰρ ἐκεῖνο βλέποντες τὸ ἐν ἀρχῇ λέγομεν αἰτεῖσθαι), τὰ δ' ἐναντία ἐστὶν ἐν ταῖς προτάσεσι τῷ ἔχειν πως ταύτας πρὸς ἀλλήλας.*

[h] Ibid. xiv. p. 163, a. 29: *πρὸς δὲ γυμνασίαν καὶ μελέτην τῶν τοιούτων λόγων πρῶτον μὲν ἀντιστρέφειν ἐθίζεσθαι χρὴ τοὺς λόγους.* For *Conversion* of Syllogism, see p. 174.

both sides.[a] When you have hunted out each train of arguments, look out at once for the counter-arguments available against it. This will strengthen your power both as questioner and as respondent. It is indeed an exercise so valuable, that you will do well to go through it by yourself, if you have no companion.[b] Put the different trains of argument, bearing on the same thesis, into comparison with each other. A wide command of arguments affirmative as well as negative will serve you well both for attack and for defence.[c]

This same accomplishment will be of use, moreover, for acquisitions even in Science and Philosophy. It is a great step to see and grasp in conjunction the trains of reasoning on both sides of the question; the task that remains—right determination which of the two is the better—becomes much easier. To do this well, however,—to choose the true and to reject the false correctly—there must be conjoined a good natural predisposition. None but those who are well constituted by nature, who have their likings and dislikes well set in regard to each particular conjuncture, can judge correctly what is best and what is worst.[d]

In regard to the primary or most universal theses, and to those problems which are most frequently put in debate, you will do well to have reasonings ready prepared, and even to get them by heart. It is on these first or most universal theses that respondents become often reluctant and disgusted. To be expert in handling primary doctrines and probabilities, and to be well provided with the definitions from which syllogisms must start, is to the dialectician an acquisition of the highest moment; like familiarity with the Axioms to a geometer, and ready application of the multiplication table to an arithmetical calculator.[e] When you have these generalities and major propositions firmly established in your mind, you will recall, in a definite order and arrangement, the particular matters falling

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[a] Topic. VIII. xiv. p. 163, a. 36: *πρὸς ἅπασάν τε θέσιν καὶ ὅτι οὕτως καὶ ὅτι οὐχ οὕτως τὸ ἐπιχείρημα σκεπτέον.*

[b] Ibid. b. 3: *κἂν πρὸς μηδένα ἄλλον ἔχωμεν, πρὸς αὑτούς·*

[c] Ibid. b. 5: *τοῦτο γὰρ πρός τε τὸ βιάζεσθαι πολλὴν εὐπορίαν ποιεῖ καὶ πρὸς τὸ ἐλέγχειν μεγάλην ἔχει βοήθειαν, ὅταν εὐπορῇ τις καὶ ὅτι οὕτως καὶ ὅτι οὐχ οὕτως· πρὸς τὰ ἐναντία γὰρ συμβαίνει ποιεῖσθαι τὴν φυλακήν.*

Instead of *πρός τε τὸ βιάζεσθαι*, ought we not to read here *πρός τε τὸ μη βιάζεσθαι*, taking this verb in the passive sense? Surely *βιάζεσθαι* in the active sense gives the same meaning substantially as *ἐλέγχειν*, which comes afterwards, both of them referring to the assailant or questioner, whereas Aristotle intends here to illustrate the usefulness of the practice to *both* parties.

[d] Ibid. b. 12-16: *δεῖ δὲ πρὸς τὸ τοιοῦτο ὑπάρχειν εὐφυᾶ. καὶ τοῦτ' ἔστιν ἡ κατ' ἀλήθειαν εὐφυΐα, τὸ δύνασθαι καλῶς ἑλέσθαι τἀληθὲς καὶ φυγεῖν τὸ ψεῦδος· ὅπερ οἱ πεφυκότες εὖ δύνανται ποιεῖν· εὖ γὰρ φιλοῦντες καὶ μισοῦντες τὸ προσφερόμενον εὖ κρίνουσι τὸ βέλτιστον.*

[e] Ibid. b. 17-26.

under each of them, and will throw them more easily into syllogisms. They will assist you in doing this, just as the mere distribution of places in a scheme for topical memory makes you recollect what is associated with each. You should lodge in your memory, however, universal major premisses rather than complete and ready-made reasonings; for the great difficulty is about the *principia*.[a]

You ought also to accustom yourself to break down one reasoning into many; which will be done most easily when the theme of the reasoning is most universal. Conceal this purpose as well as you can; and in this view begin with those particulars which lie most remote from the subject in hand.[b] In recording arguments for your own instruction, you will generalize them as much as possible, though perhaps when spoken they may have been particular; for this is the best way to break down one into several. In conducting your own case as questioner you will avoid the higher generalities as much as you can.[c] But you must at the same time take care to keep up some common or general premisses throughout the discourse; for every syllogistic process, even where the conclusion is particular, implies this, and no syllogism is valid without it.[d]

Exercise in inductive discourse is most suitable for a young beginner; exercise in deductive or syllogistic discourse, for skilful veterans. From those who are accomplished in the former you can learn the art of multiplying particular comparisons; from those who are accomplished in the latter you derive universal premisses; such being the strong points of each. When you go through a dialectical exercise, try to bring away with you for future use either some complete syllogism, or some solution of an apparent refutation, or a major premiss, or a well-sustained exceptional example (ἔνστασιν); note also whether either you or your respondent question correctly or otherwise, and on what reason such correctness or incorrectness turned.[e] It is the express purpose of dialectical exercise to acquire power

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[a] Topic. VIII. xiv. p. 163, b. 27-33: ὁμοίως καὶ ἐν τοῖς λόγοις τὸ πρόχειρον εἶναι περὶ τὰς ἀρχὰς καὶ τὰς προτάσεις ἀπὸ στόματος ἐξεπίστασθαι· καθάπερ γὰρ ἐν τῷ μνημονικῷ μόνον οἱ τόποι τεθέντες εὐθὺς ποιοῦσιν αὐτὰ μνημονεύειν, καὶ ταῦτα ποιήσει συλλογιστικώτερον διὰ τὸ πρὸς ὡρισμένας αὐτὰς βλέπειν κατ' ἀριθμόν· πρότασίν τε κοινὴν μᾶλλον ἢ λόγον εἰς μνήμην θετέον· ἀρχῆς γὰρ καὶ ὑποθέσεως εὐπορῆσαι μετρίως χαλεπόν.

[b] Ibid. b. 34.

[c] Ibid. p. 164, a. 2-7: δεῖ δὲ καὶ τὰς ἀπομνημονεύσεις καθόλου ποιεῖσθαι τῶν λόγων, κἂν ᾖ διειλεγμένος ἐπὶ μέρους·—αὐτὸν δὲ ὅτι μάλιστα φεύγειν ἐπὶ τὸ καθόλου φέρειν τοὺς συλλογισμούς.

This passage is to me obscure. I have given the best meaning which it seems to offer.

[d] Ibid. a. 8.

[e] Ibid. a. 12-19. ὅλως δ' ἐκ τοῦ γυμνάζεσθαι διαλεγόμενον πειρατέον ἀποφέρεσθαι ἢ συλλογισμὸν περί τινος, ἢ λύσιν ἢ πρότασιν ἢ ἔνστασιν, &c.

and facility in this procedure, especially as regards universal premisses and special exceptions. Indeed the main characteristic of the dialectician is to be apt at universal premisses, and apt at special exceptions. In the first of these two aptitudes he groups many particulars into one universal, without which he cannot make good his syllogism; in the second of the two he breaks up the one universal into many, distinguishing the separate constituents, and denying some while he affirms others.[a]

You must take care however not to carry on this exercise with every one, especially with a vulgar-minded man. With some persons the dispute cannot fail to take a discreditable turn. When the respondent tries to make a show of escaping by unworthy manœuvres, the questioner on his part must be unscrupulous also in syllogizing; but this is a disgraceful scene. To keep clear of such abusive discourse, you must be cautious not to discourse with commonplace, unprepared, respondents.[b]

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[a] Topic. VIII. xiv. p. 164, b. 2-6: ἔστι γὰρ ὡς ἁπλῶς εἰπεῖν διαλεκτικὸς ὁ προτατικὸς καὶ ἐνστατικός· ἔστι δὲ τὸ μὲν προτείνεσθαι ἓν ποιεῖν τὰ πλείω (δεῖ γαρ ἓν ὅλως ληφθῆναι πρὸς ὃ ὁ λόγος), τὸ δ' ἐνίστασθαι τὸ ἓν κολλά· ἢ γὰρ διαιρεῖ ἢ ἀναιρεῖ, τὸ μὲν διδοὺς τὸ δ' οὒ τῶν προτεινομενων.

[b] Ibid. b. 8-15: πρὸς γὰρ τὸν πάντως πειρώμενον φαίνεσθαι διαφεύγειν, δίκαιον μὲν πάντως πειρᾶσθαι συλλογίσασθαι, οὐκ εὔσχημον δέ.

CHAPTER X.

SOPHISTICI ELENCHI.

THE Sophist (according to Aristotle) is one whose professional occupation it is to make money by a delusive show of wisdom without the reality—by contriving to make others believe falsely that he possesses wisdom and knowledge. The abstract substantive noun *Sophistic*, with the verb *to practice as a Sophist* (σοφιστεύειν), expresses such profession and purpose.[a] This application of the term is derived from Plato, who has in various dialogues (Protagoras, Hippias, Euthydêmus, &c.) introduced Sokrates conversing with different professional Sophists, and who has, in a longer dialogue called Sophistes, attempted an elaborate definition of the intellectual peculiarities of the person so named. It is the actual argumentative procedure of the Sophist that Aristotle proposes to himself as the theme of this little treatise, appended to his general theory of the Syllogism; a treatise which, though forming properly the Ninth and concluding Book of the Topica, is commonly known as a separate appendix thereto, under the title of Sophistici Elenchi, or Sophistical Refutations.

The Sophistical Elenchus or Refutation, being a delusive semblance of refutation which imposes on ordinary men and induces them to accept it as real, cannot be properly understood without the theory of Elenchus in general; nor can this last be understood without the entire theory of the Syllogism, since the Elenchus is only one variety of Syllogism.[b] The Elenchus is a syllogism with a conclusion contradictory to or refutative of some enunciated thesis or proposition. Accordingly we must first understand the conditions of a good and valid Syllogism, before we study those of a valid Elenchus; these last, again,

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[a] Soph. El. i. p. 165, a. 21, 28, 32: ἔστι γὰρ ἡ σοφιστικὴ φαινομένη σοφία οὖσα δ' οὔ, καὶ ὁ σοφιστὴς χρηματιστὴς ἀπὸ φαινομένης σοφίας ἀλλ' οὐκ οὔσης·—ἀνάγκη οὖν τοὺς βουλομένους σοφιστεύειν τὸ τῶν εἰρημένων λόγων γένος ζητεῖν·—ὅτι μὲν οὖν ἔστι τι τοιοῦτον λόγων γένος, καὶ ὅτι τοιαύτης ἐφίενται δυνάμεως οὓς καλοῦμεν σοφιστάς, δῆλον. Also xi. p. 171, b. 27.

[b] Ibid. x. p. 171, a. 1-5.

must be understood, before we enter on the distinctive attributes of the Pseudo-elenchus—the sophistical, invalid, or sham, refutation. In other words, an enumeration and classification of Fallacies forms the closing section of a treatise on Logic—according to the philosophical arrangement originating with Aristotle, and copied by most logicians after him.

Aristotle begins by distinguishing reality and mere deceptive appearance; and by stating that this distinction is found to prevail not less in syllogisms than in other matters. Next he designates a notorious class of persons, called Sophists, who made it their profession to study and practise the deceptive appearance of syllogizing; and he then proceeds to distinguish four species of debate:—(1) Didactic; (2) Dialectic; (3) Peirastic; (4) Eristic or Sophistic.[a] In this quadruple arrangement, however, he is not consistent with his own definitions, when he ranks the four as distinct and co-ordinate species. The marked and special antithesis is between Didactic and Dialectic. Both Peirastic and Eristic fall as varieties or sub-species under the species Dialectic; and there is under the species Didactic a variety called Pseudo-graphic or Pseudo-didactic, which stands to Didactic in the same relation in which Eristic stands to Dialectic.[b]

Didactic discourse is not applicable to all matters indiscriminately, but only to certain special sciences; each of which has its own separate, undemonstrable *principia*, from which its conclusions, so far as true and valid, must be deduced. It supposes a teacher acquainted with these *principia* and deductions, talking with some one who being ignorant of them wishes to learn. The teacher puts questions, to which the learner makes the best answers that he can; and, if the answers are wrong, corrects them and proceeds to draw, according to syllogistic canons, conclusions from premisses which he himself knows to be the truth. These premisses the learner must believe upon the teacher's authority. Properly speaking, indeed, the didactic process is not interrogative (in the same sense that Dialectic is): the teacher does not accept the learner's answer and reason from it, if he thinks it wrong.[c]

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[a] Soph. El. ii. p. 165, a. 38: *ἔστι δὴ τῶν ἐν τῷ διαλέγεσθαι λόγων τέτταρα γένη, διδασκαλικοὶ καὶ διαλεκτικοὶ καὶ πειραστικοὶ καὶ ἐριστικοί.*

[b] Ibid. xi. p. 171, b. 34.

[c] Ibid. xi. p. 172, a 11: *νῦν δ' οὐκ ἔστιν ὁ διαλεκτικὸς περὶ γένος τι ὡφισμένον, οὐδὲ δεικτικὸς οὐδενός, οὐδὲ τοιοῦτος οἷος ὁ καθόλου. οὔτε γάρ ἐστιν ἅπαντα ἐν ἑνί τινι γένει, οὔτε εἰ εἴη, οἷόν τε ὑπὸ τὰς αὐτὰς ἀρχὰς εἶναι τὰ ὄντα. ὥστ' οὐδεμία τέχνη τῶν δεικνυουσῶν τινὰ φύσιν ἐρωτητική ἐστιν· οὐ γὰρ ἔξεστιν ὁποτερονοῦν τῶν μορίων δοῦναι· συλλογισμὸς γὰρ οὐ γίνεται ἐξ ἀμφοῖν. ἡ δὲ διαλεκτικὴ ἐρωτητική ἐστιν· εἰ δ' ἐδείκνυεν, εἰ καὶ μὴ πάντα, ἀλλά τά γε πρῶτα καὶ τὰς οἰκείας ἀρχάς, οὐκ ἂν ἠρώτα. μὴ διδόντος λἀο οὐκ ἂν*

Dialectic, on the contrary, is applicable to all matters universally and indiscriminately, including even the undemonstrable *principia* which the teacher assumes as the highest premisses of his didactic syllogisms. It supposes, in place of teacher and learner, an interrogator (or opponent) and a respondent. The respondent declares a problem or thesis, which he undertakes to defend; while the other puts questions to him respecting it, with the purpose of compelling him either to contradict the thesis, or to contradict himself on some other point. The interrogator is allowed only to ask questions, and to deduce legitimate conclusions from the premisses granted by the respondent in answer: he is not permitted to introduce any other premisses. The premisses upon which the debate turns are understood all to be probable—opinions accredited either among an ordinary multitude or among a few wise men, but to have no higher authority. Accordingly there is often a conflict of arguments *pro* and *con*, much diversified. The process is essentially controversial: and, if the questioner does not succeed in exposing a contradiction, the respondent is victorious, and remains in possession of the field.

Such is the capital antithesis, much dwelt upon by Aristotle, between Didactic and Dialectic. But that which he calls Peirastic, and that which he calls Eristic, are not species coordinate with and distinguished from Dialectic: they are peculiar aspects, subordinate varieties or modes, of Dialectic itself. Aristotle himself, indeed, admits Peirastic to be a mode or variety of Dialectic;[a] and the like is equally true respecting what he terms Eristic or Sophistic.

These subordinate distinctions turn upon the manner, the limitations, and the purpose, for and under which the dialectical process is conducted. Dialectic is essentially gymnastic and peirastic:[b] it may be looked at either as gymnastic, in reference to the two debaters, or as peirastic, in reference to the arguments and doctrines brought forward; intellectual exercise and stimulation of the two speakers and the auditors around being

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ἔτι εἶχεν ἐξ ὧν ἔτι διαλέξεται πρὸς τὴν ἔνστασιν.

When Aristotle, therefore, reckons *λόγους διδασκαλικοὺς* as one of the four species *τῶν ἐν τῷ διαλέγεσθαι λόγων* (Soph. El. ii. p. 165, a. 38), we must understand *τὸ διαλέγεσθαι* in a very wide and vague sense, going much beyond the derivative noun *διαλεκτική*.

[a] Soph. El. xi. p. 171, b. 4-9: *ἡ γάρ πειραστική ἐστι διαλεκτική τις*, &c.—p. 172, a. 35: *ὁ τέχνῃ συλλογιστικῇ πειραστικός, διαλεκτικός.*—viii. p, 169, b. 25: *ἔστι δ' ἡ πειραστικὴ μέρος τῆς διαλεκτικῆς.*

[b] Topic. I. ii. p. 101, a. 26, b. 2: *πρὸς γυμνασίαν—ἐξεταστικὴ γὰρ οὖσα*, &c. Compare also Topica, VIII. xi. p. 161, a. 25: xiv. p. 163, a. 29, p. 164, b. 1: *τὸ δὲ γυμνάζεσθαι δυνάμεως χάριν, καὶ μάλιστα περὶ τὰς προτάσεις καὶ ἐνστάσεις· ἔστι γὰρ ὡς ἁπλῶς εἰπεῖν διαλεκτικὸς ὁ προτατικὸς καὶ ἐνστατικός.*

effected by testing and confronting various probable doctrines. It is the common purpose (κοινὸν ἔργον)[a] of the two champions, to improve and enlarge this exercise for the instruction of all, by following out a variety of logical consequences and logical repugnancies, bearing more or less directly on the thesis which the respondent chooses and undertakes to defend against a testing cross-examination. Certain rules and limitations are prescribed both for questioner and respondent; but, subject to these rules, each of them is bound to exert all his acuteness for the purpose of gaining victory; and, though one only can gain it, the debate may be well and creditably conducted on both sides. If the rules are not observed, if the assailing champion, bent upon victory at all cost, has recourse to dishonest interrogative tricks, or the defensive champion to perverse and obstructive negations, beyond the prescribed boundary, in that case the debate is called by Aristotle *eristic* or *contentious*, from the undue predominence of the controversial spirit and purpose; also *sophistic*, from the fact that there existed (as he asserts) a class or profession of persons called Sophists, who regularly studied and practised these culpable manœuvres, first with a view to reputation, and ultimately with a view to pecuniary profit, being pretenders to knowledge and wisdom without any reality to justify them.[b]

We thus see plainly that Peirastic and Eristic are not to be ranked as two distinct species of discourse, co-ordinate with Didactic and Dialectic; but that *peirastic* is in fact an epithet applicable generally to Dialectic, bringing to view one of its useful and appropriate functions; while *eristic* designates only a peculiar mode of conducting the process, the essential feature of which is that it is abusive or that it transgresses the rules and regulations. Still less ought Sophistic to be ranked as a distinct species; since it involves no intrinsic or intellectual *differentia*, but connotes only ethical and personal peculiarities ascribed to the Sophist, who is treated as an impostor practising dishonest tricks for the sake of pecuniary profit.[c]

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[a] Topic. VIII. xi. p. 161, a. 20, 37.

[b] Soph. El. xi. p. 171, b. 25-35: *οἱ μὲν οὖν τῆς νίκης αὐτῆς χάριν τοιοῦτοι ἐριστικοὶ ἄνθρωποι καὶ φιλέριδες δοκοῦσιν εἶναι, οἱ δὲ δόξης χάριν τῆς εἰς χρηματισμὸν σοφιστικοί·—καὶ τῶν λόγων τῶν αὐτῶν μέν εἰσὶν οἱ φιλέριδες καὶ σοφισταί, ἀλλ' οὐ τῶν αὐτῶν ἕνεκεν· καὶ λόγος ὁ αὐτὸς μὲν ἔσται σοφιστικὸς καὶ ἐριστικός, ἀλλ' οὐ κατὰ ταυτόν, ἀλλ' ᾗ μὲν νίκης φαινομένης, ἐριστικός, ᾗ δὲ σοφίας, σοφιστικός·* &c.

[c] Aristot. Rhetoric. I. i. p. 1355, b. 17: *ὁ γὰρ σοφιστικὸς οὐκ ἐν τῇ δυνάμει, ἀλλ' ἐν τῇ προαιρέσει·—σοφιστὴς μὲν κατὰ τὴν προαίρεσιν, διαλεκτικὸς δ' οὐ κατὰ τὴν προαίρεσιν ἀλλὰ κατὰ τὴν δύναμιν.* To the same purpose he speaks in Metaphys. Γ. ii. p. 1004, b. 25, distinguishing the Sophist by his *προαίρεσις* from the Dialectician, but recognizing that in point of *δύναμις* both are alike. Mr. Poste observes justly (in Transl. of the Soph.

While, however, we recognize as main logical distinctions only the two heads Didactic and Dialectic, we note another way that Aristotle has of bringing in what he calls Sophistic as a variety of the latter. Both in Didactic and Dialectic (he tells us) the speakers enunciate and prove their propositions by Syllogism; the didactic syllogism is derived from the *principia* belonging specially to one particular science, and proceeds from premisses that are true to conclusions that are true; while the dialectic syllogism starts from probable premisses (*i.e.*, accredited by the ordinary public or by a few wise men), and marches in correct form to conclusions that are probable. Now, corresponding to each of these two, Aristotle recognizes farther a sort of degenerate counterpart. To the didactic syllogism there corresponds the *pseudo-graphic* syllogism or the *paralogism*: which draws its premisses (as the didactic syllogism does) from the special matters of some given science,[a] yet which nevertheless has only the appearance of truth without the reality: either because it is incorrect in syllogistic form, or because the matter of the premisses (the major, the minor, or both) is untrue. To the dialectic syllogism in like manner, there corresponds the *eristic* or *sophistic* syllogism: which is a good syllogism in appearance, but not in reality; either because it is incorrect in form, or because its premisses, in respect of their matter, appear to be probable without being really probable.[b]

One would suppose that the relation between the pseudo-didactic and the didactic syllogism, was the same as that between the pseudo-dialectic and the dialectic; so that, if the pseudo-dialectic deserved to be called sophistic or eristic, the pseudo-didactic would deserve these appellations also; especially, since the formal conditions of the syllogism are alike for both. This Aristotle does not admit, but draws instead a remarkable distinction. The Sophist (he says) is a dishonest man, making it his professional purpose to deceive; the pseudo-graphic man of science is honest always, though sometimes mistaken. So long as the pseudo-graphic syllogism keeps within the limits belonging to its own special science, it may be false, since the

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El., notes, p. 99):—"*δύναμις*, capacity, is in the intellect; *προαίρεσις*, purpose, in the will. The antithesis between these terms may throw light on what Aristotle conceived to be the relation between Sophistic and Dialectic. . . The power *plus* the will to deceive is called Sophistic; the power without the will, Dialectic (p. 100)."

[a] Topic. I. i. p. 101, a. 5-15. *οἱ ἐκ τῶν περί τινας ἐπιστήμας οἰκείων γινόμενοι παραλογισμοί, καθάπερ ἐπὶ τῆς γεωμετρίας καὶ τῶν ταύτῃ συγγενῶν συμβέβηκεν ἔχειν·—ἐκ τῶν οἰκείων μὲν τῇ ἐπιστήμῃ λημμάτων, οὐκ ἀληθῶν δέ, τὸν συλλογισμὸν ποιεῖται.*

[b] Ibid p. 100, a. 31-p. 101, a. 16; Soph. El. i. p. 164, a. 20-b. 21.

geometer may be deceived even in his own science geometry,[a] but it cannot be sophistic or eristic; yet, whenever it transgresses those limits, even though it be true and though it solves the problem proposed, it deserves to be called by those two epithets. Thus, there were two distinct methods proposed for the quadrature of the circle—one by Hippokrates, on geometrical principles, the other by Bryson, upon principles extra-geometrical. Both demonstrations were false and unsuccessful; yet that of Hippokrates was not sophistic or eristic, because he kept within the sphere of geometry; while that of Bryson was so, because it travelled out of geometry. Nay more, this last would have been equally sophistic and eristic, and on the same ground, even if it had succeeded in solving the problem.[b] If indeed the pseudo-graphic syllogism be invalid in form, it must be considered as sophistic, even though within the proper scientific limits as to matter; but, if it be correct in form and within these same limits, then, however untrue its premisses may be, it is to be regarded as not sophistic or eristic.[c]

Such is the test whereby Aristotle distinguishes the sophistication of the didactic process from the legitimate working of that process. Now this same test cannot be applied to Dialectic, which has no appropriate or exclusive specialty of matters, but deals with *Omne Scibile*, universally and indiscriminately. Aristotle therefore puts the analogy in another way. Both in Didactic and in Dialectic the Sophist is one who sins against the fundamental conditions of the task which he undertakes; these conditions being, that in Didactic he shall confine himself to the matters and premisses of a given science,—in Dialectic, to matters probable of whatever kind they may be. Transgression of these conditions constitutes unfair and dishonest manœuvre, whether of teacher or questioner; like breach of the regulations on the part of competitors, bent on victory at all price, in the Olympic games. Aristotle ranks this dishonesty as a species, under the name of Sophistic or Eristic, admitting of being analysed and defined;[d] and his treatise on Sophistical

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[a] Topic. V. iv. p. 132, a. 32.

[b] Soph. El. xi. p. 171, b. 12-20: *τὰ γὰρ ψευδογραφήματα οὐκ ἐριστικά (κατὰ γὰρ τὰ ὑπὸ τὴν τέχνην οἱ παραλογισμοί), οὐδέ γ' εἴ τί ἐστι ψευδογράφημα περὶ ἀληθές, οἷον τὸ Ἱπποκράτους ἢ ὁ τετραγωνισμὸς ὁ διὰ τῶν μηνίσκων. ἀλλ' ὡς Βρύσων ἐτετραγώνιζε τὸν κύκλον, εἰ καὶ τετραγωνίζεται ὁ κύκλος, ἀλλ' ὅτι οὐ κατὰ τὸ πρᾶγμα, διὰ τοῦτο σοφιστικός.* Also p. 172, a. 1-8.

[c] Ibid. xi. p. 171, b. 19-20. Compare Topic. VIII. xi. p. 161, a. 33: *δεῖ δὲ τὸν καλῶς μεταβιβάζοντα διαλεκτικῶς καὶ μὴ ἐριστικῶς μεταβιβάζειν, καθάπερ τὸν γεωμέτρην γεωμετρικῶς, ἄν τε ψεῦδος ἄν τ' ἀληθὲς ᾖ τὸ συμπεραινόμενον.* Also Topic. VIII. xii. p. 162, b. 10.

[d] Soph. El. xi. p. 171, b. 22: *ὥσπερ γὰρ ἡ ἐν ἀγῶνι ἀδικία εἶδός τι ἔχει καὶ ἔστιν ἀδικομαχία τις, οὕτως ἐν ἀντιλογίᾳ ἀδικομαχία ἡ ἐριστική ἐστιν· ἐκεῖ τε γὰρ οἱ πάντως νικᾶν προαιρούμενοι πάντων ἅπτονται, καὶ ἐνταῦθα οἱ ἐριστικοί.*

Refutations is intended to describe and illustrate the *Loci* belonging to it, and contributing to its purpose.[a]

Fallacious dialectical refutation being thus referred altogether to dishonesty of purpose (either contentious or profit-seeking) and being assumed as unknown in fair dialectical debate, we have to see by what characteristic Aristotle discriminates fallacious premisses from fair and admissible premisses. Dialectic (he tells us) has for its appropriate matter probable premisses—beliefs accredited either by the multitude or by a wise few. But (he goes on to say) not everything which appears probable is really probable. Nothing that is really probable is a mere superficial fancy; wherever this last is the case, the *probabilia* are apparent only and not real; they have the character of falsehood stamped upon them, so as to be immediately manifest and obvious, even to persons of very narrow intelligence. It is such apparent *probabilia* as these, which make up the premisses of eristic or sophistic discourse, and upon which the sophistical or fallacious refutations turn.[b]

Aristotle thus draws a broad and marked line between Dialectic on the one hand, and Eristic or Sophistic on the other; and he treats the whole important doctrine of Logical Fallacies as coming under this latter department. The distinction that he draws between them is two-fold: first as to purpose, next as to subject-matter. On the part of the litigious or sophistical debater there is the illicit purpose of victory at all cost, or for profit: and probabilities merely apparent—such as any one may see not to be real probabilities—constitute the matter of his syllogisms.

Now, as to the distinction of purpose, we may put aside the idea of profit as having no essential connection with the question. It is quite possible to suppose the fair Dialectician, not less than the Sophist, as exhibiting his skill for pecuniary reward; while the eagerness for victory on both sides is absolutely indispensable even in well-conducted debate, in order that the appropriate stimulus and benefit of dialectical exercise may be realized. But, if the distinction of purpose and procedure, between the Dialectician and the Sophist, is thus undefined and unsatis-

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[a] Soph. El. ix. p. 170, a. 34: δῆλον οὖν ὅτι οὐ πάντων τῶν ἐλέγχων ἀλλὰ τῶν παρὰ τὴν διαλεκτικὴν ληπτέον τοὺς τόπους.

[b] Topic. I. i. p. 100, b. 23: ἐριστικὸς δ' ἐστι συλλογισμὸς ὁ ἐκ φαινομένων ἐνδόξων μὴ ὄντων δέ, καὶ ὁ ἐξ ἐνδόξων ἢ φαινομένων ἐνδόξων φαινόμενος. οὐ γὰρ πᾶν τὸ φαινόμενον ἔνδοξον, καὶ ἔστιν ἔνδοξον. οὐθὲν γὰρ τῶν λεγομένων ἐνδόξων ἐπιπόλαιον ἔχει παντελῶς τὴν φαντασίαν, καθάπερ περὶ τὰς τῶν ἐριστικῶν λόγων ἀρχὰς συμβέβηκεν ἔχειν· παραχρῆμα γὰρ καὶ ὡς ἐπὶ τὸ πολύ τοῖς καὶ μικρὰ συνορᾶν δυναμένοις κατάδηλος ἐν αὐτοῖς ἡ τοῦ ψεύδους ἐστὶ φύσις. Compare Soph. El. ii. p. 165, b. 7.

factory, still more unsatisfactory is the distinction of subject-matter. To discriminate between what is really probable (*i.e.*, accredited either by the multitude or by a wise few), and what is only probable in appearance and not in reality—is a task of extreme difficulty. The explanation given by Aristotle himself[a]—when he describes the apparently probable as that which has only superficial show, and which the most ordinary intelligence discerns at once to be false—includes only the more gross and obvious fallacies, but leaves out all the rest. Nothing can be more incorrect than the assumption, in regard to fallacies generally, that the appearance of probability is too faint to impose upon any ordinary man. If all fallacies could be supposed to come under this definition, the theory of Fallacies would undoubtedly be worthless (as Mr. Poste suggests that it is, in the Preface to his translation of the Sophistici Elenchi); and the most dishonest Sophist would at any rate be harmless. But, in fact, Aristotle himself departs from this definition even in the beginning of the Sophistici Elenchi; for he there treats the sophistic syllogism and refutation as having a semblance of validity plausible enough to impose upon many persons, and to be difficult of detection; like base metals having the exterior appearance of gold and silver, and like men got up for the purpose of looking finer and stronger than they really are.[b] Here we have the eristic or sophistic syllogism presented as fallacious, yet as very likely to be mistaken for truth, by unprepared auditors, unless warning and precaution be applied; not (as it was set forth in the definition above cited) as bearing the plain and obvious stamp of falsehood, recognizable even by the vulgar. At the time when Aristotle constructed that definition, he probably had present to his mind such caricatures of dialectical questions as Plato (in the dialogue Euthydêmus) puts into the mouth of the Sophists Euthydêmus and Dionysodorus. And, since Aristotle chose to connect fallacious reasoning with dishonest purposes, and to announce it as employed exclusively by dishonest debaters, he seems to have found satisfaction in describing it as something which no honest man of ordinary understanding could accept as true: the Sophist being thus presented not merely as a knave but as a fool.

I think it a mistake on the part of Aristotle to treat the fallacies incidental to the human intellect as if they were mere traps laid by Sophists and litigants; and as if they would never

[a] Topic. I. i. p. 100, b. 24, seq.

[b] Soph. El. i. p. 164, a. 23-b. 27. τὸν αὐτὸν δὲ τρόπον καὶ συλλογισμὸς καὶ ἔλεγχος ὁ μὲν ἔστιν, ὁ δ' οὐκ ἔστι μέν, φαίνεται δὲ διὰ πὴν ἀπειρίαν· οἱ γὰρ ἄπειροι ὥσπερ ἂν ἀπέχοντες πόῤῥωθεν θεωροῦσιν.

show themselves, assuming dialectical debate to be conducted entirely with a view to its legitimate purposes of testing a thesis and following out argumentative consequences. It is true that, if there are infirmities incident to the human intellect, a dishonest disputant will be likely to take advantage of them. So far it may be well to note his presence. But the dishonest disputant does not originate these infirmities: he finds them already existing, and manifested undesignedly not merely in dialectical debate, but even in ordinary discourse. It is the business of those who theorize on the intellectual processes to specify and discriminate the Fallacies as liabilities to intellectual error among mankind in general, honest or dishonest, with a view to precaution against their occurrence, or correction if they do occur; not to present them as inventions of a class of professional cheats,[a] or as tares sown by the enemy in a field where the natural growth would be nothing but pure wheat.

In point of fact the actual classification of Fallacies given by Aristotle is far sounder than his announcement would lead us to expect. Though he entitles them Sophistical Refutations, describing them as intentionally cultivated and exclusively practised by professional Sophists for gain, or by unprincipled litigants for victory, yet he recognises them as often very difficult of detection, and as an essential portion of the theory of Dialectic generally.[b] The various general heads under which he distributes them are each characterized by intellectual or logical marks.

His first and most general observation is, that language is the usual medium and instrument through which fallacies are operated.[c] Names and propositions are of necessity limited in number; but things named or nameable are innumerable; hence it happens inevitably that the same name or the same proposition must have several different meanings. Since we cannot talk of things except by means of their names, the equivocation inseparable from these names is a constant source of false conclusions.[d]

In dialectical procedure, the Sophist and the litigious debater aim at the accomplishment of five distinguishable ends:—(1) To refute, or obtain the false appearance of refuting, the thesis; (2) To catch, or appear to catch, the opponent in affirming

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[a] Soph. El. i. p. 165, a. 19, seq.
[b] Ibid. xi. p. 172, b. 7.
[c] Ibid. i. p. 165, a. 5.
[d] Ibid. a. 10: τὰ μὲν γὰρ ὀνόματα πεπέρανται καὶ τὸ τῶν λόγων πλῆθος, τὰ δὲ πράγματα τὸν ἀριθμὸν ἄπειρά ἐστιν. ἀναγκαῖον οὖν πλείω τὸν αὐτὸν λόγον καὶ τοὔνομα τὸ ἓν σημαίνειν.

something false or contradictory; (3) Or in affirming something paradoxical; (4) Or in uttering incorrect and ungrammatical speech; (5) Or in tautological repetition. The first of these five ends is what the Sophist most desires; where that cannot be had, then, as secondary purposes, the succeeding four, in the order in which they are enumerated.[a]

The syllogism whereby the Sophist appears to refute without really refuting, is either faulty in form, or untrue in matter, or irrelevant to the purpose. The Fallacies that he employs to bring about this deceitful appearance of refutation are various, and may be distributed first under two great divisions:—

I. *Fallaciæ Dictionis.*

II. *Fallaciæ Extra Dictionem.*

I. The first division—*Fallaciæ Dictionis*—includes all those cases wherein, under the same terms or propositions, more than one meaning is expressed. Six heads may be distinguished:—

1. Homonymy (Equivocation): where the double meaning resides in one single term—noun or verb.

2. Amphiboly: where the double meaning resides, not in a single word but, in a combination of words—proposition, phrase, or sentence.

3. Conjunction (hardly distinguishable from that immediately preceding—Amphiboly).

4. Disjunction: where what is affirmed conjunctively is not true disjunctively, or the reverse. (*E.g.*, Five are two and three; but you cannot say, Five are even and odd. The greater is equal and something besides; but you cannot say, The greater is equal.)

5. Accentuation: where the same word differently accentuated has a different meaning.

6. *Figura Dictionis:* where two words, from being analogous in form, structure, or conjugation, are erroneously supposed to be analogous in meaning also.[b]

Such are the six heads of *Fallaciæ Dictionis*—Fallacies or Paralogisms arising from words as such, or something directly appertaining to them.

II. Under the second division—Fallacies or Paralogisms *Extra Dictionem*—there are seven heads:

1. *Fallacia Accidentis.*

2. *Fallacia a dicto Secundum Quid ad dictum Simpliciter.*

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[a] Soph. El. iii. p. 165, b. 12-22. [b] Ibid. iv. p. 165, b. 23-p. 166, b. 19.

3. *Ignoratio Elenchi.*
4. *Fallacia Consequentis.*
5. *Petitio Principii.*
6. *Non Causa pro Causâ.*
7. *Fallacia Plurium Interrogationum.*[a]

1. The first of these varieties, called *Fallacia Accidentis*, arises when a syllogism is made to conclude that, because a given predicate may be truly affirmed of a given subject, the same predicate may also be truly affirmed respecting all the accidents of that subject: as when Koriskus is denied to be a man, because he is not Sokrates, who is a man; or is denied to be Koriskus, because he is a man, while a man is not Koriskus.

In the title given to this general head of Fallacy,[b] we must understand Accident, not in its special logical sense as opposed to Essence, but in a far larger sense, including both Genus when predicated separately from Differentia, and Differentia when predicated separately from Genus; including, in fact, every thing which is distinguishable from the subject in any way, and at the same time predicable of it—every thing except the Definition, which conjoins Genus and Differentia together, and is thus identical and convertible with the *definitum*.

2. The second general variety arises when a proposition is affirmed with qualification or limitation in the premisses, but is affirmed without qualification, simply and absolutely, in the conclusion. The Ethiopian is white in his teeth and black in his skin; therefore, he is both white and not white—both white and black. In this example the fallacy is obvious, and can hardly escape any one; but there are many other cases in which the distinction is not so conspicuous, and in which the respondent will hesitate whether he ought to grant or refuse a question simply and absolutely.[c] One example given by Aristotle deserves notice on its own account: *Non-Ens est opinabile*, therefore *Non-Ens est;* or, again, *Ens non est homo*, therefore, *Ens non est.* This is one among Aristotle's ways of bringing to view what modern logicians describe as the double function of the substantive verb—to serve as copula in predication, and to predicate existence.[d] He regards the confusion between these two

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[a] Soph. El. v. p. 166, b. 20-27.

[b] Ibid. b. 29: *οἱ παρὰ τὸ συμβεβηκὸς παραλογισμοί.* Every man is an animal; but, because a predicate is true of the subject man, you cannot infer that the same predicate is true of the subject animal. This title comprehends within its range another, which is presently announced as distinct and separate—*Fallacia Consequentis.*

[c] Ibid. b. 37, seq. *ὅταν τὸ ἐν μέρει λεγόμενον ὡς ἁπλῶς εἰρημένον ληφθῇ—τὸ δὲ τοιοῦτον ἐπ' ἐνίων μὲν παντὶ θεωρῆσαι ῥᾴδιον—ἐπ' ἐνίων δὲ λανθάνει πολλάκις.*

[d] The same double or multiple meaning of *Est* is discriminated by Aristotle in

functions as an example of the Fallacy now before us—of passing *a dicto Secundum Quid ad dictum Simpliciter.*[a]

3. The third of these heads of Fallacy—*Ignoratio Elenchi*—is, when the speaker, professing to contradict the thesis, advances another proposition which contradicts it in appearance only but not in reality, because he does not know what are the true and sufficient conditions of a valid Elenchus. In order to be valid, it must be real, not merely verbal; it must be proved by good syllogistic premisses, without any *Petitio Principii;* and it must deny the same matter, in the same relations, and at the same time, as that which the thesis affirmed. Thus, it is no contradiction to affirm and deny doubleness of the same body; both affirmation and denial may be true, if you take the comparison against different numbers or different bodies, or at different times. Sometimes persons neglect some of these conditions, and fancy that they have contradicted the thesis, when they have not: this is *Ignoratio Elenchi.*[b] (If the thesis be an affirmative

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the Metaphysica, but in a different way—*τὸ ὂν ὡς ἀληθές, καὶ τὸ μὴ ὂν ὡς ψεῦδος*—Δ. vii. p. 1017, a. 31; E. iv. p. 1027, b. 18-36. Bonitz (ad. Metaphys. Z. iv. p. 310) says:—"Quid quod etiam illud *esse* huc refert, quo non existentiam significamus, sed predicati cum subjecto conjunctionem." Aristotle is even more precise than modern logicians in analysing the different meanings of *τὸ ὄν*: he distinguishes *four* of them.

[a] Soph. El. v. p. 167, a. 1: *οἷον εἰ τὸ μὴ ὄν ἐστι δοξαστόν, ὅτι τὸ μὴ ὂν ἔστιν· οὐ γὰρ ταὐτὸν εἶναί τέ τι καὶ εἶναι ἁπλῶς.*

Compare Metaphys. Z. iv. p. 1030, a. 25, and De Interpretatione, p. 21, a. 25-34: *ὥσπερ Ὅμηρός ἐστί τι, οἷον ποιητής· ἆρ' οὖν καὶ ἔστιν, ἢ οὔ; κατὰ συμβεβηκὸς γὰρ κατηγορεῖται τοῦ Ὁμήρου τὸ ἔστιν· ὅτι γὰρ ποιητής ἐστιν, ἀλλ' οὐ καθ' αὑτό, κατηγορεῖται κατὰ τοῦ Ὁμήρου τὸ ἔστιν.*

It is clear from the above passages that Aristotle was thoroughly aware of the logical fact which Hobbes, James Mill, and Mr. John Stuart Mill, have more fully brought out and illustrated, as the confusion between the two distinct functions of the substantive verb. Many excellent remarks on the subject will be found in the 'System of Logic,' by Mr. J. S. Mill (Bk. I. ch. iv. s. 1); also in the 'Analysis of the Human Mind,' by James Mill, especially in the recent edition of that work, containing the explanatory notes by Mr. J. S. Mill and Dr. Findlater (Vol. I. ch. iv. p. 174, seq.). Mr. J. S. Mill, however speaks too unreservedly of this confusion as having escaped the notice of Aristotle, and as having been brought to light only by or since Hobbes. He says (in a note on the 'Analysis,' p. 183):—"As in the case of many other luminous thoughts, an approach is found to have been made to it by previous thinkers. Hobbes, though he did not reach it, came very close to it; and it was still more distinctly anticipated by Laromiguière, though without any sufficient perception of its value . . . in the following words:—"Quand on dit, l'être est, &c., le mot *est*, ou le verbe, n'exprime pas la même chose que le mot *être*, sujet de la définition. Si j'énonce la proposition suivante: Dieu est existant, je ne voudrais pas dire assurément, Dieu existe existant: cela ne ferait pas un sens: de même, si je dis que Virgile est poète, je ne veux pas donner à entendre que Virgile existe. Le verbe *est* dans la proposition n'exprime dont pas l'existence réelle; il n'exprime qu'un rapport spécial entre le sujet et l'attribut, &c.'" The passages above cited from Aristotle show that he had not only enunciated the same truth as Laromiguière, but even illustrated it by the same example (Homer instead of Virgil). I shall in another place state more fully the views of Aristotle respecting *Existence.*

[b] Soph. El. v. p. 167, a. 21-35: *οἱ δὲ παρὰ τὸ μὴ διωρίσθαι τί ἐστι συλλογισμὸς ἢ τί ἔλεγχος, ἀλλὰ παρὰ τὴν ἔλλειψιν γίνονται τοῦ λόγου.*

We may remark, by the way, that it is not very consistent in Aristotle to recognize one general head of Sophistical Refutation called *Ignoratio Elenchi*, after

universal, it *is* sufficient contradiction if you prove a negative particular against it.)

4. The fourth head includes what are called *Fallaciæ Consequentis:* when a man inverts the relation between predicate and subject in a categorical proposition affirmative and universal, thinking that it may be simply converted or that the subject may be truly affirmed of the predicate; or when, in an hypothetical proposition, he inverts the relation between antecedent and consequent, arguing that, because the consequent is true, the antecedent must for that reason be true also. Honey is of yellow colour; you see a yellow substance, and you infer for that reason that it must be honey. Thieves generally walk out by night; you find a man walking out by night, and you infer that he must be a thief. These are inferences from Signs, opinions founded on facts of sense, such as are usually employed in Rhetoric; often or usually true, but not necessarily or universally true, and therefore fallacious when used as premisses in a syllogism.[a]

5. The fifth head is that of *Petitio Principii:* a man sometimes assumes for his premiss what is identical with the conclusion to be proved, without being aware of the identity.[b]

6. The sixth head of Fallacy—*Non Causa pro Causâ*—is, when we mistake for a cause that which is not really a cause; or, to drop the misleading word *cause*, and to adopt the clearer terms in which this same fallacy is announced in the Analytica Priora[c] —*Non per Hoc—Non propter Hoc*, it arises when we put forward, as an essential premiss of a given conclusion, something that is

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the definition that he has given of the Sophist at the beginning of this treatise. He had told us that the Sophist was a dishonest man, who made it his profession to study and practise these tricks, for the purpose of making himself pass for a clever man, and of getting money. According to this definition, there is no *Ignoratio Elenchi* in the Sophist, though there may be in the person who supposes himself refuted. The Sophist is assumed to know what he is about, and to be aware that his argument is a fallacious one.

[a] Soph. El. v. p. 167, b. 1-18. This head (*Fallacia Consequentis*) is not essentially distinguishable from the first (*Fallacia Accidentis*), being nothing more than a peculiar species or variety thereof, as Aristotle himself admits a little farther on—vi. p. 168, a. 26; vii. p. 169, b. 7; viii. p. 170, a. 3. Compare also xxviii. p. 181, a. 25.

[b] Ibid. v. p. 167, a. 38: διὰ τὸ μὴ δύνασθαι συνορᾶν τὸ ταὐτὸν καὶ τὸ ἕτερον.

[c] Ibid. b. 21; vii. p. 169, b. 13. Compare Analyt. Prior. II. xvii. p. 65.

In commenting on the above chapter of the Analytica Priora, I have already remarked (Vol. I. p. 258, note) how much better is the designation there given of the present fallacy—*Non per Hoc* (οὐ παρὰ τὴν θέσιν τὸ ψεῦδος)—than the designation here given of the same fallacy —*Non Causa pro Causâ*. Aristotle is speaking of a syllogistic process, consisting of premisses and a conclusion; the premisses being the *reasons* or grounds of the conclusion, not the *cause* thereof, as that term is commonly understood. The term *cause* is one used in so many different senses that we cannot be too careful in reasoning upon it. See Whately's remarks on this subject, Bk. iii. sect. 14, of his Logic: also his Appendix I. to that work, under article *Reason*.

not really an essential premiss thereof. When you intend to refute a given thesis by showing, that, if admitted, it leads to impossible or absurd conclusions, you must enunciate that thesis itself among the premisses that lead to such absurdities.[a] But, though enunciated in this place, it may often happen that the thesis may be an unnecessary adjunct—not among the premisses really pertinent and essential: and that the impossible conclusion may be sufficiently proved, even though the thesis were omitted. Still, since the thesis is declared along with the rest, it will appear falsely to be a part of the real proof. It will often appear so even to yourself the questioner; you not detecting the fallacy.[b] Under such circumstances the respondent meets you by *Non propter Hoc*. He admits your conclusion to be impossible, and at the same time to be duly proved, but he shows you that it is proved by evidence independent of his thesis, and not by reason or means of his thesis. Accordingly you have advanced a syllogism good in itself, but not good for the purpose which you aimed at;[c] viz., to refute the thesis by establishing that it led to impossible consequences. You will fail, even if the impossible consequence which you advance is a proposition conjoined with the thesis through a continuous series of intermediate propositions, each of them having one common term with the next. Much more will you fail, if your impossible consequence is quite foreign and unconnected with the thesis; as we sometimes find in Dialectic.

7. The seventh and last of these heads of Fallacy is, when the questioner puts two distinct questions in the same form of words, as if they were one—*Fallacia Plurium Interrogationum ut Unius*. In well-conducted Dialectic the respondent was assumed to reply either Yes or No to the question put; or, if it was put in the form of an alternative, he accepted distinctly one term of the alternative. Under such conditions he could not reply to one of these double-termed questions without speaking falsely or committing himself. Are the earth and the sea liquid? Is the heaven or the earth sea? The questions are improperly put, and neither admits of any one correct answer. You ought to confine yourself to one question at a time, with one subject and one predicate, making what is properly understood by one single proposition. The two questions here stated as examples ought properly to be put as four.[d]

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[a] Soph. El. v. p. 167, b. 24: ἐὰν οὖν ἐγκαταριθμηθῇ ἐν τοῖς ἀναγκαίοις ἐρωτήμασι πρὸς τὸ συμβαῖνον ἀδύνατον, δόξει παρὰ τοῦτο γίνεσθαι πολλάκις ὁ ἔλεγχος.

[b] Ibid. b. 35: καὶ λανθάνει πολλάκις οὐχ ἧττον αὐτοὺς τοὺς ἐρωτῶντας τὸ τοιοῦτον.

[c] Ibid. b. 34: ἀσυλλόγιστοι μὲν οὖν ἁπλῶς οὐκ εἰσὶν οἱ τοιοῦτοι λόγοι, πρὸς δὲ τὸ προκείμενον ἀσυλλόγιστοι.

[d] Ibid. b. 38-p. 168, a. 16; vi. p. 169,

Aristotle has thus distinguished and classified Fallacies under thirteen distinct heads in all—six *In Dictione*, and seven *Extra Dictionem;* among which last one is *Ignoratio Elenchi.* He now proceeds to show that, in another way of looking at the matter, all the Fallacies ranged under the thirteen heads, may be shown to be reducible to this single one—*Ignoratio Elenchi.* Every Fallacy, whatever it be, transgresses or fails to satisfy, in some way or other, the canons or conditions which go to constitute a valid Elenchus,[a] or a valid Syllogism. For a true Elenchus is only one mode of a true Syllogism; namely, that of which the conclusion is contradictory to some given thesis or proposition.[b] With this particular added, the definition of a valid Syllogism will also be the definition of a good Elenchus. And thus *Ignoratio Elenchi*—misconception or neglect of the conditions of a good Elenchus—understood in its largest meaning, is rather a characteristic common to all varieties of Fallacy, than one variety among others.[c]

In regard to two among the thirteen heads—*Fallacia Accidentis* and *Fallacia Consequentis* (which however ought properly to rank as only one head, since the second is merely a particular variety of the first)—Aristotle's observations are remarkable. After having pointed out that a Syllogism embodying this fallacy will not be valid or conclusive (thus showing that it involves *Ignoratio Elenchi*), he affirms that even scientific men were often not aware of it, and conceived themselves to be really refuted by an unscientific opponent urging against them such an inconclusive syllogism. To take an example:—Every triangle has its three angles equal to two right angles; every triangle is a figure; therefore, every figure has its three angles equal to two right angles.[d] Here we have an invalid syllogism; for it is in

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a. 6-12. *ἡ γὰρ πρότασίς ἐστιν ἓν καθ' ἑνός.—εἰ οὖν μία πρότασις ἡ ἓν καθ' ἑνὸς ἀξιοῦσα, καὶ ἁπλῶς ἔσται πρότασις ἡ τοιαύτη ἐρώτησις.*

The examples given of this fallacy by Aristotle are so palpable—the expounder of every fallacy *must* make it clear by giving examples that every one sees through at once—that we are tempted to imagine that no one can be imposed on by it. But Aristotle himself remarks, very justly, that there occur many cases in which we do not readily see whether one question only, or more than one, is involved; and in which one answer is made, though two questions are concerned. To set out distinctly all the separate debateable points is one of the most essential precautions for ensuring correct decision. The importance of such discriminating separation is one of the four rules prescribed by Descartes in his Discours de la Méthode. The present case comes under Mr. Mill's Fallacies of Confusion.

[a] Soph. El. vi. p. 168, a. 19: *ἔστι γὰρ ἅπαντας ἀναλῦσαι τοὺς λεχθέντας τρόπους εἰς τὸν τοῦ ἐλέγχου διορισμόν.*

[b] Ibid. a. 35.

[c] Ibid. p. 169, b. 15.

[d] Ibid. p. 168, a. 40: *οὐδ' εἰ τὸ τρίγωνον δυοῖν ὀρθαῖν ἴσας ἔχει, συμβέβηκε δ' αὐτῷ σχήματι εἶναι ἢ πρώτῳ ἢ ἀρχῇ, ὅτι σχῆμα ἢ ἀρχὴ ἢ πρῶτον τοῦτο.*

Here we have Figure reckoned as an *accident* of Triangle. This is a specimen of Aristotle's occasional laxity in employ-

the Third figure, and sins against the conditions of that figure, by exhibiting an universal affirmative conclusion: it is a syllogism properly concluding in *Darapti*, but with conclusion improperly generalized. Yet Aristotle intimates that a scientific geometer of his day, in argument with an unscientific opponent, would admit the conclusion to be well proved, not knowing how to point out where the fallacy lay: he would, if asked, grant the premisses necessary for constructing such a syllogism; and, even if not asked, would suppose that he had already granted them, or that they ought to be granted.[a]

The passage affords us a curious insight into the intellectual grasp of the scientific men contemporary with Aristotle. Most of them were prepared to admit fallacious inferences (such as the above) which assumed the interchangeability of subject and predicate. They had paid little or no attention to the logical relations between one proposition and another, and between the two different terms of the same proposition. The differences of essential from accidental predication, and of each among the five Predicables from the others, must have been practically familiar to them, as to others, from the habit of correct speaking in detail; but they had not been called upon to consider correct speaking and reasoning in theory, nor to understand upon what conditions it depended whether the march of their argumentative discourse landed them in true or false results. And, if even the scientific men were thus unaware of logical fallacies, we may be sure that this must have been still more the case with unscientific men, of ordinary intelligence and education. Aristotle tells us here, in more than one passage, how widespread such

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ing the word συμβεβηκός. He commonly uses it as contrasted with *essential*, of which last term Mr. Poste says very justly (notes, p. 129):—"To complete the statement of Aristotle's view, it should be added, that essential propositions are those whose predicate cannot be defined without naming the subject, or whose subject cannot be defined without naming the predicate." Now figure is the genus to which triangle belongs, and triangle cannot be defined without naming its genus figure. But to include Genus as a predicable under the head of συμβεβηκός or Accident, is in marked opposition to Aristotle's own doctrine elsewhere: see Topic. I. v. p. 102, b. 4; iv. p. 101, b. 17; Analyt. Post. I. ii. p. 71, b. 9; Metaphys. E. p. 1026, b. 32. It is a misfortune that Aristotle gave to this general head of Fallacy the misleading title of *Fallacia Accidentis*—παρὰ τὸ συμβεβηκός. When he gave this title, he probably had present to his mind only such examples as he indicates in Soph. El. v. p. 166, b. 32. Throughout the Topica and elsewhere, Genus is distinguished pointedly from συμβεβηκός, though examples occur occasionally in which the distinction is neglected. The two Fallacies called *Accidentis* and *Consequentis*, would both be more properly ranked under one common logical title—*Supposed convertibility or interchangeableness between Subject and Predicate*—εἰ τόδε ἀπὸ τοῦδε μὴ χωρίζεται, μηδ' ἀπὸ θατέρου χωρίζεσθαι θάτερον (vii. p. 169, b. 8).

[a] Soph. El. vi. p. 168, b. 6: ἀλλὰ παρὰ τοῦτο καὶ οἱ τεχνῖται καὶ ὅλως οἱ ἐπιστήμονες ὑπὸ τῶν ἀνεπιστημόνων ἐλέγχονται· κατὰ συμβεβηκὸς γὰρ ποιοῦνται τοὺς συλλογισμοὺς πρὸς τοὺς εἰδότας· οἱ δ' οὐ δυνάμενοι διαιρεῖν ἢ ἐρωτώμενοι διδόασιν ἢ οὐ δόντες οἴονται δεδωκέναι.

illogical tendencies were: to fancy that two subjects which had one predicate the same must be the same with each other in all respects;[a] to understand each predicate applied to a subject as being itself an independent subject, implying a new *Hoc Aliquid* or *Unum;*[b] to treat the universal, not as a common epithet but, as a substantive and singular apart;[c] to use equivocal words or phrases, even the most wide and vague, without any attempt to discriminate their various meanings.[d] Such insensibility to the conditions of accurate reasoning prevailed alike among ordinary men and among the men of special science. A geometer would be imposed upon by the inconclusive syllogism stated in the last paragraph, which, as being founded on the *Fallacia Accidentis* (or interchangeability of subject and predicate), Aristotle numbers among Sophistical Refutations. Such a refutation, however, even when successful, would not at all prove that the geometer was deficient in knowledge of his own science;[e] for it would puzzle the really scientific man as well as the pretender.

We must always recollect that Aristotle was the first author who studied the logical relations between Terms and Propositions, with a view to theory and to general rules founded thereupon. The distinctions which he brought to view were in his time novelties; even the simplest rules, such as those relating to the Conversion of propositions, or to Contraries and Contradictories, had never been stated in general terms before. Up to a certain point, indeed, acquired habit, even without these generalities, would doubtless lead to correct speech and reasoning; yet liable to be perverted in many cases by erroneous tendencies, requiring to be indicated and guarded against by a logician. When we are told that even a professed geometer was imposed upon by these fallacies, we learn at once how deep-seated were such illogical deficiencies, how useful was Aristotle's theoretical study in marking them out, and how insufficient was his classification when he described the Fallacies as obvious frauds, broached only by dishonest professional Sophists. As he himself states, the cause of deceit turns upon a quite trifling difference; having its root in the imperfection of language and

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[a] Soph. El. vi. p. 168, b. 31: *τὰ γὰρ ἑνὶ ταὐτῷ ταὐτά, καὶ ἀλλήλοις ἀξιοῦμεν εἶναι ταὐτά.*—vii. p. 169, b. 7: *ἔτι καὶ ἐπὶ πολλῶν φαίνεται καὶ ἀξιοῦται οὕτως, εἰ τόδε ἀπὸ τοῦδε μὴ χωρίζεται, μηδ' ἀπὸ θατέρου χωρίζεσθαι θάτερον.*

[b] Ibid. vii. p. 169, a. 33: *ὅτι πᾶν τὸ κατηγορούμενόν τινος ὑπολαμβάνομεν τόδε τι καὶ ὡς ἓν ὑπακούομεν· τῷ γὰρ ἑνὶ καὶ τῇ οὐσίᾳ μάλιστα δοκεῖ παρέπεσθαι τὸ τόδε τι καὶ τὸ ὄν.*

[c] Ibid. xxii. p. 178, b. 37-p. 179, a. 10.

[d] Ibid. vii. p. 169, a. 22.

[e] Ibid. viii. p. 169, b. 27: *οἱ δὲ σοφιστικοὶ ἔλεγχοι, ἂν καὶ συλλογίζωνται τὴν ἀντίφασιν, οὐ ποιοῦσι δῆλον εἰ ἀγνοεῖ· καὶ γὰρ τὸν εἰδότα ἐμποδίζουσι τούτοις τοῖς λόγοις.* Compare vi. p. 168, b. 6.

in our frequent habit of using words without much attention to logical distinctions.[a]

Under one or other, then, of the thirteen general heads above enumerated, all Paralogisms must be included—merely apparent syllogisms, or refutations, which are not real and valid;[b] and all of them designated by Aristotle as sophistic or eristic. Besides these, moreover, he includes, as we saw, under the same designation, syllogisms or refutations valid in form, and true as to conclusion, yet founded on premisses not suited to the matter in debate; *i.e.*, not suited to Dialectic. Now, here it is that difficulty arises. Dialectic and Rhetoric are carefully distinguished by Aristotle from all the special sciences (such as Geometry, Astronomy, Medicine, &c.); and are construed as embracing every variety of authoritative *dicta*, current beliefs, and matters of opinion, together with all the most general maxims and hypotheses of Ontology and Metaphysics, of Physics and Ethics, and the common Axioms assumed in all the sciences, as discriminated from what is special and peculiar to each. Construed in this way, we might imagine that the subject-matter of Dialectic was all-comprehensive, and that every thing without exception belonged to it, except the specialties of Geometry and of the other sciences; and such is the usual language of Aristotle. Yet in the treatise before us we find him exerting himself to establish another classification, and to part off Dialectic from a certain other science or art which he acknowledges under the title of Sophistic or Eristic.[c] Elsewhere he describes Sophistic as occupied in the study of accidents or occasional conjunctions; and this characteristic feature parts it off from Demonstration and Science. But there is greater difficulty when he tries to part it off from Dialectic. Where are we to find a clear line of distinction between the matter of dialectic debate (gymnastic or testing) on the one hand, and the matter of debate sophistic or litigious, on the other? At the beginning of the Topica Aristotle assigned, as the distinction, that the Dialectician argues upon premisses *really* probable, while the litigious Sophist takes up premisses which are probable *in appearance only*, and not in reality; such apparent *probabilia* (he goes on to say) having only the most superficial semblance of

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[a] Soph. El. vii. p. 169, b. 14: *ἐν ἅπασι γὰρ ἡ ἀπάτη διὰ τὸ παρὰ μικρόν· οὐ γὰρ διακριβοῦμεν οὔτε τῆς προτάσεως οὔτε τοῦ συλλογισμοῦ τὸν ὅρον διὰ τὴν εἰρημένην αἰτίαν.* Compare v. p. 167, a. 5-14; i. p. 165, a. 6-19.

[b] Ibid. viii. p. 170, a. 10.

[c] Metaphys. K. viii. p. 1064, b. 26: *τοῦτο δὲ (τὸ συμβεβηκός) οὐδεμία ζητεῖ τῶν ὁμολογουμένως οὐσῶν ἐπιστημῶν, πλὴν ἡ σοφιστική· περὶ τὸ συμβεβηκὸς γὰρ αὕτη μόνη πραγματεύεται.* Compare Analyt. Poster. I. ii. p. 71, b. 10.

truth, and being seen immediately to be manifest falsehoods by persons of very ordinary intelligence.[a] But I have already pointed out that this description of apparent *probabilia*, if considered as applying to fallacious reasoning generally, is both untenable in itself, and contradicted by Aristotle himself elsewhere. The truth is, that there is no clear distinction between the matter of Dialectic and the matter of Sophistic. And so, indeed, Aristotle must be understood to admit, when he falls back upon an alleged distinction of aim and purpose between the practitioners of one and the other. The litigious man (he tells us) is bent upon nothing but victory in debate, *per fas et nefas:* the Sophist aims at passing himself off falsely for a wise or clever man, and making money thereby.[b]

Now, in regard to the distinction of aim or disposition drawn by Aristotle between the dialectical disputant and the litigious or sophistic disputant, we see at once, as was before suggested, that it lies apart from the critical estimate of art, science, or philosophy; and that it belongs, so far as it is well founded, to the estimate of individuals ethically and politically, as worthy men or patriotic citizens. Whether Euripides or Sophokles composed finer tragedies (as we find argued in the Ranæ of Aristophanes), must be decided by examining the tragedies themselves, not by enquiring whether one of them was vain and greedy of money, the other free from these blemishes. A theorist who is laying down general principles of Rhetoric, and illustrating them by the study of Æschines and Demosthenes, will appreciate the oration against Ktesiphon and the oration De Coronâ in their character of compositions intended for a particular purpose. For Rhetoric it is of no moment whether Æschines was venal or disinterested—a malignant rival or an honest patriot; this is an enquiry important indeed, but belonging to the historian and not to the rhetorical theorist. Whether

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[a] Topic. I, i. p. 100, b. 26: *οὐ γὰρ πᾶν τὸ φαινόμενον ἔνδοξον καὶ ἔστιν ἔνδοξον. οὐθὲν γὰρ τῶν λεγομένων ἐνδόξων ἐπιπόλαιον ἔχει παντελῶς τὴν φαντασίαν, καθάπερ περὶ τὰς τῶν ἐριστικῶν λόγων ἀρχὰς συμβέβηκεν ἔχειν· παραχρῆμα γὰρ καὶ ὡς ἐπὶ τὸ πολὺ τοῖς καὶ μικρὰ συνορᾶν δυναμένοις κατάδηλος ἐν αὐτοῖς ἡ τοῦ ψευδοῦς ἐστὶ φύσις.* It is by reference to this distinction between *ἔνδοξα* which are genuine and *ἔνδοξα* which are only such in appearance that the Scholiast (p. 306, b. 40) explains the meaning of Aristotle in the eleventh chapter of Sophistici Elenchi: *ὁ μὲν οὖν κατὰ τὸ πρᾶγμα θεωρῶν τὰ κοινὰ διαλεκτικός, ὁ δὲ τοῦτο φαινομένως ποιῶν σοφιστικός* (p. 171, b. 6-20). I confess that I attach no distinct meaning to the words *κατὰ τὸ πρᾶγμα θεωρεῖν τὰ κοινά*, which characterizes the Dialectician as contrasted with the Sophist; nor can I learn much from the notes either of Waitz or of Mr. Poste (p. 129, seq.) on the passage. Take for example the last half of the Parmenides of Plato, or Book B. of the Metaphysica of Aristotle. Are we to say that in these two compositions Plato and Aristotle speculate on *τὰ κοινὰ κατὰ τὸ πρᾶγμα*, or that they do so only in appearance?

[b] Soph. El. xi p. 171, b. 25-35; i. p. 165, a. 21-31.

Aristotle was or was not guided, in his animadversions on Plato, by an unworthy and captious jealousy of his master, is an interesting question in reference to his character; but our appreciation of his philosophy must proceed upon an examination, not of his motives but, of his doctrines and reasonings as we find them. A good argument is not deprived of its force when enunciated by a knave, nor is a bad argument rendered good because it proceeds from a virtuous man. Indeed, so far as the character of the speaker counts at all, in falsifying the fair logical estimate of an argument, it operates in a direction opposite to that here indicated by Aristotle. The same argument in the mouth of one who is esteemed and admired counts for more than its worth; in the mouth of a person of low character it counts for less than it is worth.[a] To distribute arguments into two classes—those employed by persons of dishonourable character and those employed by honourable men—is a departure from the scientific character of Logic.

As to the other part of the case (if it is still necessary to recur to it), touching the peculiarity of the matter of sophistical arguments, the inconsistency of Aristotle is most apparent. In enumerating the Sophistical Refutations he tells us that these fallacies are indeed sometimes palpable and easily detected, but that they are often very difficult to detect and very misleading; that an unprepared hearer will generally be imposed upon by several of them, and even a scientific hearer by some; and that, even where the fallacy does not actually deceive, the proper mode of meeting and exposing it will not occur unless to one previously exercised in Dialectic.[b] That Fallacies *In Dictione*, taken as a class (though these are what he declares to be the most usual *modus operandi* of the sham dialecticians called Sophists[c]), often passed unperceived, and were hard to solve and elucidate even when perceived—we know to have been his opinion; for it is not only in the Topica and Sophistici Elenchi, but also in the Metaphysica and other works,[d] that he takes pains to analyse and discriminate the several distinct meanings

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[a] Eurip. Hecub. 293.

> τὸ δ' ἀξίωμα, κἂν κακῶς λέγῃς, τὸ σὸν
> πείσει· λόγος γὰρ ἔκ τ' ἀδοξούντων ἰὼν
> κἀκ τῶν δοκούντων αὑτὸς οὐ ταὐτὸν σθένει.

Aristot. Rhetoric. I. ii. p. 1356, a. 5-15.

[b] Soph. El. v. p. 167, a. 5-15, b. 5-35. *καὶ λανθάνει πολλάκις οὐχ ἧττον αὐτοὺς τοὺς ἐρωτῶντας τὸ τοιοῦτον.*—vii. p. 169, a. 22-30, b. 8-15: *ἐν ἅπασι γὰρ ἡ ἀπάτη διὰ τὸ παρὰ μικρόν.*—xv. p. 175, a. 20.

[c] Ibid. i. p. 165, a. 2-20.

[d] Topic. I. vii. p. 103, a. 6-39: p. 106, b. 3-9: p. 107, a. 12, b. 7: *πολλάκις δὲ καὶ ἐν αὐτοῖς τοῖς λόγοις λανθάνει παρακολουθοῦν τὸ ὁμώνυμον.* Cf. Topic. II. iii. p. 110, b. 33; V. ii. p. 129, b. 30, seq.; VI. x. p. 148, a. 23, seq. Soph. El. x. p. 171, a. 17.

Compare also Book Δ. of the Metaphysica, and the frequent recognition and analysis *τῶν πολλαχῶς λεγομένων* throughout the other Books of the Metaphysica.

borne by terms familiar to every one, such as *idem, unum, pulchrum, bonum, amare, album, acutum*, &c., which terms therefore, when employed in argument, were always liable to introduce a fallacy of Equivocation or Amphiboly. He tells us the like in specifying the seven Fallacies *Extra Dictionem*: that they also were often unnoticed, and required vigilant practice to see through and solve. The description in detail, therefore, which Aristotle gives (in Sophistici Elenchi) of the working process peculiar to the litigious Sophist, is completely at variance with the definition which he had given of the sophistic syllogism at the commencement of the Topica. That definition is indeed suitable for the *type-specimens* which he and other logicians give to illustrate this or that class of Fallacies: the type-specimen produced must carry absurdity on the face of it, so that the reader may at first sight recognize it as a fallacy; and he may even find difficulty in believing that any one can really be imposed upon by such trifling. But, though suitable for the type-specimen taken separately, this definition fails in the essential character which Aristotle postulates for a definition, since it is quite untrue and unsuitable for numerous instances of the class intended to be illustrated.[a] Aristotle was the first who attempted to distribute Fallacies into classes, such that, while in each class there were certain specimens palpably stamped with the fallacious character, there were also in each class an indefinite multitude of analogous cases wherein the fallacious character did not reveal itself openly or easily, but required attentive consideration to detect it, often indeed remaining undetected, and producing its natural fruit of error and confusion. This was one of his many great merits in regard to Logic; and the classification of Fallacies (modified as to details) has passed to all subsequent logicians, so that we find difficulty in understanding that the contemporaries of Sokrates and Plato had no idea of it. But the value of his service to Logic would be much lessened, if all fallacies were sophistic syllogisms, intended to deceive but never really deceiving, corresponding to his definition at the beginning of the Topica; if (as he tells us in the Sophistici Elenchi) they were only impudent forgeries put in circulation by a set of professional knaves called Sophists; and if all non-sophistical dialecticians, and all the world without, could be

[a] Topic. VI. i. p. 139, a. 26: *δεῖ γὰρ τὸν τοῦ ἀνθρώπου ὁρισμὸν κατὰ παντὸς ἀνθρώπου ἀληθεύεσθαι*.—VI. x. p. 148, b. 2: *δεῖ γὰρ ἐπὶ πᾶν τὸ συνώνυμον ἐφαρμόττειν*.

Whoever reads the Sixth Book of the Topica, wherein Aristotle indicates to the questioner *Loci* for impugning a definition, will see how little this definition of the Sophistic Syllogism will stand such attacks.

trusted as speaking correctly by nature and as never falling into them.

The appeal made by Aristotle to a difference of character and motives as the distinction between the Dialectician and the Sophist is all the more misplaced, because he himself lays down as the essential feature of Dialectic generally, that it is a match or contention between two rivals, each anxious to obtain the victory. It is like a match at chess between two expert players, or a fencing-match between two celebrated masters at arms. Its very nature is to be an attack and defence, in which each combatant resorts to stratagem, and each outwits the other if he can. Whether the match is played for money or for nothing—whether the contentious spirit is more or less intense—does not concern the theorist on dialectical procedure. It is indispensable that both the questioner and the respondent should exert their full force, the one in thrusting, the other in parrying: if they do not, the purpose of Dialectic, which is the common business of both, will not be attained. That purpose is clearly declared by Aristotle. It is not didactic: he distinguishes it expressly from teaching,[a] where one man who knows communicates such knowledge to an ignorant pupil. It is gymnastic, exercising the promptitude and invention of both parties; or peirastic, testing whether the respondent knows a given thesis in such manner as to avoid being driven into answers inconsistent with each other or notoriously false.[b] Each party seeks, not to help or enlighten but, to puzzle and defeat the other. As at chess or in fencing, to mask one's projects and deceive the adversary is essential to the work and to its purpose; each expects it from the other, and undertakes to meet and parry it. The theses debated were always such that arguments might be found both for the affirmative and for the negative.

According to Aristotle himself, therefore, the Dialectician is agonistic and eristic, just as much as the Sophist. If the one tries to entrap his opponent for the purpose of victory, so also does the other: the line which Aristotle draws between them is one not founded upon any real distinction between two purposes and modes of procedure, but is merely verbal and sentimental; putting aside under a discredited title what he himself disliked. He admits that the dialectical questioner, whenever the thesis which he undertakes to refute is true, can never refute it except by inducing the respondent to concede what is false; that, even

[a] Soph. El. ii. p. 165, b. 1-5; x. p. 171, a. 32-b. 2. Cf. Topic. VIII. xi. p. 161, a. 25.

[b] Topic. I. i. p. 100, a. 20; VIII. i. p. 155, b. 10-28.

where the thesis is false, he often can only refute it by some other incompatible falsehood, because he cannot obtain from the respondent better premisses; that, where the thesis is probable and conformable to received opinion, his only way of refuting it is by entrapping the respondent into concessions paradoxical and contrary to received opinion.[a] But these ends—fallacious refutation, falsehood, and paradox—are the very same as those which Aristotle (in the Sophistici Elenchi)[b] sets forth as the peculiar characteristics of the litigious Sophist. And the improving intellectual tendencies which he ascribes to Sophistic, are almost identical with those attributed to Dialectic, being declared in very similar words.[c] That there were dialecticians of every degree of merit, in the time of Aristotle, cannot be doubted; some clever and ready, others stupid and destitute of invention. But that there were any two classes of dialecticians such as he describes and contrasts—one heretical class, called Sophists, who purposely and habitually employed the thirteen fallacious refutations, and another orthodox class who purposely avoided or habitually abstained from them—we may most reasonably doubt. If the argument in the Sophistici Elenchi is good at all, it is good against all Dialectic. The Sophist, as Aristotle describes him, is only the Dialectician looked at on the unfavourable side and painted by an enemy. We know that there were in Greece many enemies of Dialectic generally; the intense antipathy inspired by the cross-examining colloquy of Sokrates, and attested by his own declarations, is a sufficient proof of this. The enemies of Sokrates depicted him—as Aristotle depicts the Sophist in the Sophistici Elenchi—as a clever fabricator of fallacious contradictions and puzzles; to which Aristotle adds the farther charge (advanced by Plato before him) against the Sophist, of arguing for lucre—which is an irrelevant charge, travelling out of the region of art, and bearing on the personal character of the individual. If the sophistical stratagems were discreditable and mischievous when exhibited for money, they would be no less such if exhibited gratuitously. The sophistical discourse is not (as Aristotle would have us believe) generically distinguishable from the dialectical;[d] nor is Sophistic an art distinct from Dialectic while adjoining to it, but an inseparable portion of the tissue of Dialectic itself.[e] If the Sophist passed himself off as

[a] Topic. VIII. xi. p. 161, a. 24.

[b] Soph. El. iii. p. 165, b. 14.

[c] Compare Topic. I. ii. p. 101, a. 26-b. 4, with Soph. El. xvi. p. 175, a. 5-16.

[d] Soph. El. ii. p. 165, a. 32; xxxiv. p. 183, b. 1.

[e] Plato, Apol. Sokrat. p. 23, A. Compare this with Aristot. Soph. El. i. p. 165, a. 30.

knowing what he did not really know, so also did the Dialectician; as we know from the testimony of Sokrates, the most consummate master of the art. The conflict of two minds each taking advantage of the misconceptions, short-comings, and blindness of the other, is the essential feature of Dialectic as Aristotle conceives it; to which the eight books of his Topica are adapted, with their multiplicity of distinctions and precepts both for attack and defence. There cannot be a game of chess without stratagems, nor a fencing-match without feints; the power of such aggressive deception is one characteristic mark of a good player. Those who teach or theorize on the game do not seek to exclude stratagem, but furnish precautions to prevent it from succeeding. Mastery of the art assumes skill in defence as well as in attack.

Doubtless there are rules that require to be observed in the dialectical attack and defence, as there are rules for all other matches such as chess or fencing. I should have been glad if Aristotle had given a precise and tenable explanation what these rules were. He describes the Sophist as one who plays the game unfairly; but we have already seen that the ends pursued by the Dialectician generally are hardly at all distinguishable from those aimed at by the Sophist. If we look to the account of the means employed by one and the other, we shall in like manner fail to see how any real line can be drawn between them.

Thus, one proceeding declared to be characteristic of the Sophist is—that he puts multiplied questions apparently at random, without any visible bearing on the thesis; practising a sort of fishing examination, in order to obtain some answer of which he may take advantage.[a] But, when we turn to the Eighth Book of the Topica, we find Aristotle expressly recommending the like manœuvre to the Dialectician; advising him to conceal as much as possible the scheme and intended series of his questions—to begin as far as possible apart from the thesis, to put the questions in a succession designedly incoherent and unintelligible, and to obtain (what, if obtained, ensured complete success) the full extent of premisses necessary for his final refutative syllogism, without the respondent being aware that he had conceded them.[b] The questioner is farther advised to throw

[a] Soph. El. xii. p. 172, b. 9-25.

Aristotle treats the Sophists as guilty of dishonourable proceeding herein—*δύνανται δὲ νῦν ἧττον κακουργεῖν διὰ τούτων ἢ πρότερον.* The very same charge was urged against the dialectic of Sokrates by his opponents: Plato, Hippias Minor, p. 373—*ἀλλὰ Σωκράτης ἀεὶ ταράττει ἐν τοῖς λόγοις καὶ ἔοικεν ὥσπερ κακουργοῦντι.* Compare Plato, Gorgias, pp. 461, B., 482, E., 483, A.

[b] Topic. VIII. i. p. 155, b. 1.-p. 155. b. 30; p. 156, a. 5-22. Compare Analyt. Priora, II. xix. p. 66, a. 33.

the respondent off his guard by affecting indifference whether each question is answered affirmatively or negatively, and by occasionally taking objection against himself, in order that he may create the impression of a strictly honest purpose.[a] If we compare the interrogative procedure which Aristotle recommends to the Dialectician with that which he blames in the Sophist, we shall find that the former is even a greater refinement of deception than the latter.

The next trick which we find ascribed to the Sophist is—that he conducts the train of interrogation in such manner as to bring it upon a ground on which his memory is abundantly furnished with topics. Aristotle adds that this may be done well and honourably, or ill and dishonourably.[b] From his own admission we see that this practice was not peculiar to Sophists, but was common also to those whom he calls Dialecticians: like every other part of the procedure, it might be done well or ill; but wherein this difference consisted he does not further explain. Indeed, when we recollect that the elaborate details and classification of the Topica are mainly intended to furnish the memory with an abundant store of premisses well-arranged and ready for interrogation,[c] we may be sure that every Dialectician who had gone through the trouble of learning them would be impatient to apply them; and would make an opportunity for doing so, if none were spontaneously tendered to him. But, if the answers obtained were totally irrelevant to his final purpose of refuting the thesis, they would be nothing but embarrassment to him.[d] We must, therefore, understand that the questions put would be such as tended ultimately to introduce that refutative Syllogism which the questioner was bound to conclude with. If they were not, he was of course punished by failure.

A third manœuvre treated as peculiar to the Sophist is—that

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[a] Topic, VIII. i. p. 156, b. 3, 17. Compare VIII. i. pp. 155-156, with Soph. El. xv. p. 174, a. 28.

[b] Soph. El. xii. p. 172, b. 26. In Topic. III. i. p. 116, a. 20, Aristotle prescribes the same procedure to the Dialectician. See also Waitz's note on the passage.

Alexander (in Scholia, p. 267, b. 8) tells us that it was customary for the Sophists to put questions lying away from the thesis, and he shows this by mentioning the Platonic Protagoras, in which he says that the Sophist Protagoras does so. But the illustration here produced does not serve Alexander's purpose. The Sophist Protagoras (in the Platonic dialogue so called) is represented, not as shifting dialectic from one point to another, but as running away from it altogether into long discourse and continuous rhetoric (Plato, Protagor. pp. 333, 334, 335). In respect to the thesis started for debate, the dialectic of Sokrates departs from it as widely as that of Protagoras, and this is acknowledged at the close of the dialogue, p. 361. Compare 'Plato and the Other Companions of Sokrates,' Vol. II. pp. 53, 59, 70.

[c] Topic. I. v. p. 102, a. 13; I. xiii. p. 105, a. 22; VIII. xiv. p. 163, a. 31-b. 2.

[d] Aristotle himself observes this, Topic. II. v. p. 112, a. 14.

he takes account of the particular philosophical sect to which the respondent belongs, and endeavours to bring out by interrogations whatever there may be paradoxical in the tenets of that sect.[a] But would not any expert Dialectician do just the same? What else would be done by Sokrates, if cross-examining an Anaxagorean or a Herakleitean? or by Aristotle himself, if interrogating a Platonist?

Another proceeding treated as peculiar to the Sophist is—that he seeks to drive the respondent into a paradox, by bringing out in cross-examination certain well-known antitheses or contradictions which subsist together in the opinions of mankind. Thus, men profess in their public talk high principles of virtue; but secretly and at the bottom of their hearts they desire to get wealth or power *per fas et nefas*. Again, there are two kinds of justice: one, that which is just by nature and in truth, such as wise men or philosophers approve; the other, that which is just according to law or custom, such as the multitude in this or in some other society approve. There is, also, conflict between the authority of a father, and that of the wise; between justice and expediency; and as to whether it is more eligible to suffer wrong or to do wrong.[b] All these antitheses are presented to us in the Platonic Gorgias, to which (*i.e.*, to the speech of Kallikles therein) Aristotle here makes reference; and he numbers it among the vices distinguishing the Sophist from the genuine Dialectician—to dwell upon such antitheses for the purpose of forcing the respondent into paradoxical answers. But, surely, the antitheses here fastened upon that obnoxious name are of a class utterly opposed to the class of *pseudo-probabilia*, which he tells us are the peculiar game of the litigious Sophist, though every man of ordinary intelligence detects them at first sight as fallacies. They are all real and serious issues,[c] having plausible arguments *pro* and *con*, debateable without end, and settled by every man for himself according to his own sentiment and predisposition. They are exactly the subject-matter best fitted for the acute Dialectician. No man would be allowed by Aristotle to deserve that title, if he omitted to raise and argue them, the thesis being supposed suitable.[d] Aristotle himself speaks often of the equi-

[a] Soph. El. xii. p. 172, b. 29.

[b] Ibid. b. 36-p. 173, a. 30.

[c] Rhetoric. II. xxv. p. 1402, a. 33: *οἱ μὲν γὰρ συλλογισμοὶ ἐκ τῶν ἐνδόξων, δοκοῦντα δὲ πολλὰ ἐναντία ἀλλήλοις ἐστίν*.

A disputant who argued about these memorable ethical antitheses, must be allowed *κατὰ τὸ πρᾶγμα θεωρεῖν τὰ κοινά*, which is the characteristic feature assigned by Aristotle to the Dialectician, as contrasted with the Sophist (Soph. El. xi. p. 171, b. 5), in so far as I can understand the words *κατὰ τὸ πρᾶγμα*. See note [a] p. 394 supra.

[d] Topic. I. iii. p. 101, a. 5-10. *ἐκ τῶν ἐνδεχομένων ποιεῖν ἃ προαιρούμεθα.*

vocal sense of the term justice—of the distinction between what is just by nature and what is just according to some local or peculiar sentiment.[a] The manœuvre which Aristotle imputes to the Sophist being exactly the same as that which Kallikles imputes to Sokrates in the Platonic Gorgias,[b] it is Sokrates, and not Kallikles, who serves here as illustrating what Aristotle calls a Sophist. Indeed, if we read the Gorgias, we shall find the Platonic Sokrates there represented as neglecting the difference between what is probable (conformable to received opinion) and what is paradoxical. He admits that he stands alone in his opinion, against all the world, and his opponents even imagine that he is bantering them; but he confides in his own individual reason and consistency, so as to be able to reduce all opponents dialectically to proved contradiction with themselves.[c] Himself maintaining a paradox, he constrains his respondent by acute dialectic to assent to it; which is exactly what Aristotle imputes to the Sophists of his day as a reproach.

Some predecessors of Aristotle had distinguished arguments or discourses into two separate classes—those addressed to the name, and those addressed to the thought.[d] This distinction Aristotle disapproves, denying certainly its pertinence and almost its reality. There can be no arguments addressed to the thought only, apart from the name: all of them must be addressed to the name, and through it to the thought.[e] Whether an argument is addressed to the thought or not, depends not upon any thing in the argument itself, but upon the meaning which one respondent or other may happen to attach to the words: if the respondent understands it as the questioner intended, it is addressed to the thought; if not, not.[f] To require that the questioner shall distinguish accurately the sense in which he puts the question, would, according to Aristotle, convert him into a teacher—would confound the line between Dialectic and Didactic.[g] And this may be granted; but not less, if Dialecticians are to refrain from

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[a] Topic. II. xi. p. 115, b. 25. Ethic. Nikom. V. x. p. 1134, b. 18; I. i. p. 1094, b. 15. Rhetoric. I. xiii. p. 1373, b. 5.

[b] Plato, Gorgias, pp. 482-483. ὃ δὴ καὶ σὺ (Sokrates) τοῦτο τὸ σοφὸν καταvενοηκὼς κακουργεῖς ἐν τοῖς λόγοις, ἐὰν μέν τις κατὰ νόμον λέγῃ, κατὰ φύσιν ὑπερωτῶν, ἐὰν δὲ τὰ τῆς φύσεως, τὰ τοῦ νόμου.

[c] Plato, Gorgias, pp. 470, 472, 481, 482.

[d] Soph. El. x. p. 170, b. 12: οὐκ ἔστι δὲ διαφορὰ τῶν λόγων ἥν λέγουσί τινες, τὸ εἶναι τοὺς μὲν πρὸς τοὔνομα λόγους, ἑτέρους δὲ πρὸς τὴν διάνοιαν. From this allusion (and other allusions also xvii. p. 176, a. 6; xx. p. 177, b. 8; xxii. p. 178, b. 10) to the doctrines of predecessors, we see that the assertion made by Aristotle (in the last chapter of Sophistici Elenchi) of his own originality, and of the absence of prior researches, must be taken with some indulgence.

[e] Soph. El. x. p. 170, b. 23.

[f] Ibid. b. 28: οὐ γὰρ ἐν τῷ λόγῳ ἔστι τὸ πρὸς τὴν διάνοιαν εἶναι, ἀλλ' ἐν τῷ τὸν ἀποκρινόμενον ἔχειν πως πρὸς τὰ δεδομένα.

[g] Ibid. p. 171, a. 28, seq.

all those proceedings which Aristotle notes and condemns as peculiar to the Sophist, must they be held to pass into the attitude of teacher and learner; the questioner doing what he can, not to embarrass but, to enlighten and assist the respondent. The purpose of victory, and the stimulus of competition in the double function of question and answer (while entirely absent from Didactic),are quite as essential to the Dialectician as to the Sophist. That the Sophist seeks victory unscrupulously and at all cost, while the Dialectician respects certain rules and limits of the procedure—is a difference well deserving to be noticed; yet not a *differentia* giving name and essence to a new species. The unfair Dialectician is a Dialectician still; all his purposes remain the same, though the means whereby he pursues them are altered. This distinction of means between the two, Aristotle has taken very insufficient pains to point out. Rude and provocative manner, either on the part of questioner or respondent, and impudent assumption of concessions which have neither been asked nor granted,—these are justly enumerated as illustrations of unfair Dialectic.[a] But the enumeration is most incompletely performed; because Aristotle, in his anxiety to erect Sophistic into an art or procedure by itself, distinct from and alongside of Dialectic, has transferred to it much that belongs to fair and and admissible Dialectic. Hence the really unfair and objectionable means are not often brought into the foreground.

Though Aristotle speaks so contemptuously about Sophistic, he nevertheless indicates *Loci* (or general heads of subjects) to assist the sophistical questioner in attacking, and precepts to the sophistical respondent for warding off attack. On the whole, these precepts are not materially different from those laid out in the Topica for Dialectic; except that he gives greater prominence to Solecism and Tautology, as thrusts practised by the sophistical questioner. He insists upon the intellectual usefulness of practice in sophistical debate, hardly less than in what he calls dialectical, and, as was remarked, upon similar grounds.[b] He recommends it as valuable not only for imparting readiness and abundance in argument, but also for solitary meditation and for investigation of scientific truths. Without it (he declares) we cannot become familiar with the equivocations of terms and propositions, nor acquire the means of escaping them. If we allow ourselves to be entangled in them, without being aware of it, by others, we shall also be entangled in them when we

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[a] Soph. El. xv. p. 174, a. 22, b. 10.
[b] Ibid. xvi. p. 175, a. 5-16. Compare Topic, I. ii. p. 101, a. 30, seq.

pursue reflections of our own.[a] It is not enough to see generally that there *is* a fallacy; we must farther learn to detect at once the precise seat of the fallacy, and to point out rapidly how it may be cleared up. This is the more difficult to do, because fallacies that we are thoroughly aware of will often escape our notice under inversion and substitution of words.[b] Unless we acquire promptitude by frequent exercise in such debates, we shall find ourselves always unprepared and behind-hand in each particular case of confusion. If we complain and condemn such debates generally, we shall appear to do so upon no better grounds than our own stupidity and incompetence.[c]

Accordingly the Sophistici Elenchi contains precepts, at considerable length,[d] to the respondent in a sophistical debate, how reply or solution is to be given to the fallacies involved in the questions; all the thirteen Fallacies, (the six *In Dictione,* and the seven *Extra Dictionem*) being treated in succession. In conducting his defensive procedure, the respondent must keep constantly in mind what the Sophistical Refutation really is. He must treat it not as a real or genuine refutation, but as a mere simulation of such; and he must so arrange his reply as to bring into full evidence this fact of simulation. What he has to guard against is, not the being really refuted but, the seeming to be refuted.[e] The refutative syllogism constructed by the sophistical questioner, including as it does Equivocation, Amphiboly, or some other verbal fallacy, and therefore yielding no valid conclusion, does not settle whether the respondent is really refuted or not. If indeed the questioner, in putting his interrogation, discriminates the double meaning of his words, where they have a double meaning, the respondent ought to answer plainly and briefly Yes, or No; either affirming or denying what is tendered. But, if the questioner does not so discriminate, the respondent cannot reply simply Yes, or No: he must himself discriminate the two meanings, and affirm or deny accordingly.[f]

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[a] Soph. El. xvi. p. 175, a. 9: *δεύτερον δὲ πρὸς τὰς καθ' αὑτὸν ζητήσεις (χρήσιμοι)· ὁ γὰρ ὑφ' ἑτέρου ῥᾳδίως παραλογιζόμενος καὶ τοῦτο μὴ αἰσθανόμενος κἂν αὐτὸς ὑφ' αὑτοῦ τοῦτο πάθοι πογγάκις.*

[b] Ibid. a. 20: *οὐ ταὐτὸ δ' ἐστὶ λαβόντα τε τὸν λόγον ἰδεῖν καὶ λῦσαι τὴν μοχθηρίαν, καὶ ἐρωτώμενον ἀπαντᾶν δύνασθαι ταχέως. ὃ γὰρ ἴσμεν, πολλάκις μετατιθέμενον ἀγνοοῦμεν.* Compare xxxiii. p. 182, b. 7.

[c] Ibid. xvi. p. 175, a. 25: *ὥστε, ἂν δῆλον μὲν ἡμῖν ᾖ, ἀμελέτητοι δ' ὦμεν, ὑστεροῦμεν τῶν καιρῶν πολλάκις.*

[d] From xvi. p. 175, to xxxiii. p. 183, of Soph. El.

[e] Soph. El. xvii. p. 175, a. 33: *ὅλως γὰρ πρὸς τοὺς ἐριστικοὺς μαχετέον, οὐκ ὡς ἐλέγχοντας, ἀλλ' ὡς φαινομένους· οὐ γὰρ φαμεν συλλογίζεσθαί γε αὐτούς, ὥστε πρὸς τὸ μὴ δοκεῖν διορθωτέον.*

[f] Ibid. b. 1-14. Compare Topica, VIII. vii. p. 160, a. 29.

Aristotle tells us that this demand for a reply brief and direct, without any qualifying additions or distinctions, was advanced by dialecticians in former days much more emphatically than in his own —*ὃ τ' ἐπιζητοῦσι νῦν μὲν ἧττον πρότερον δὲ μᾶλλον οἱ ἐριστικοί, τὸ ἢ ναὶ ἢ οὒ ἀποκρίνεσθαι τὸν ἐρωτώμενον, ἐγίνετ' ἄν.* I

Unless he guards himself by such discrimination, he cannot avoid falling into a contradiction, at least in appearance. The equivocal wording of the question will be tantamount to the fallacy of putting two questions as one.[a]

As the questioner may propound as refutation what seems to be such but is not so in reality, so the respondent may meet it by what is an apparent solution but no solution in reality. There occur various cases, in sophistic or agonistic debate, wherein a simulated solution of this kind is even preferable to a real one.[b] If the question is plausible, the respondent may answer, "Be it so"; but, if it involves any paradox in answering, he will answer by saying, "So it would appear": he will thus not be supposed to have granted what amounts to refutation or paradox.[c] Where the question put is such that, while involving falsehood or paradox if answered in the affirmative, it is at the same time closely or immediately connected with the thesis set up,—the respondent may treat it as equivalent to a *Petitio Principii*, and make answer in the negative. Also, where the questioner, trying to establish an universal proposition by Induction, puts the final question, not under an universal term but, as the general result of the particulars conceded (and such like),—the respondent may refuse to admit this last step, and may say that his antecedent concessions have been misunderstood.[d]

If a question is put in plain and appropriate language, answer must be made plainly or with some clear distinction; but, where the question is put obscurely and elliptically, leaving part of the meaning unexpressed, the respondent must not concede it unreservedly. If he does, fallacious refutation may very possibly be the result:[e] he may appear to be refuted by that which is no real refutation. If, of two propositions, the second follows upon the first, but the first does not follow upon the second, the respondent, where he has the choice, ought to grant the second only, and not the first. He ought not to make a greater concession when he can escape with a less;[f] *e.g.*, he ought to concede the particular rather than the universal.

Again, among opinions generally received, there are some which the public recognize as matters of more or less doubt and uncertainty; others, on which they are firmly assured that

presume that he makes comparison with the Platonic dialogues—Euthydemus, p. 295; Gorgias, pp. 448-449: Protagoras, pp. 334-335.

[a] Soph. El. xvii. 175, b. 15-p. 176, a. 18.

[b] Ibid. p. 176, a. 21.

[c] Ibid. a. 25.

[d] Ibid. a. 27-35.

[e] Ibid. a. 38-b. 7.

[f] Ibid. b. 8-13.

every one who contradicts them speaks falsely. When it is uncertain to which of these two classes the question put is referable, the respondent will be safer in answering neither affirmatively nor negatively, but simply, "I go with the received opinions."[a] In cases where opinions are divided, he may find opportunity for changing the terms, and for substituting a metaphorical equivalent as what he concedes. Such change of terms may pass without protest, in consequence of the doubtful character of the matter; while it will embarrass the questioner in constructing his refutation.[b] The respondent may further embarrass him by anticipating questions that seem likely to be put, and by objecting against them beforehand.[c]

When the questioner has obtained the premisses which he thinks necessary, and has drawn from them a refutative syllogism, the respondent must see whether he can properly solve that syllogism or not.[d] A good and proper solution is, to point out on which premiss the fallacy of the conclusion depends. First, he must examine whether it is formally correct, or whether it has only a false appearance of being so: if the last be the case, he must distinguish in which of the premisses and in what way such false appearance has arisen. If on the other hand the syllogism is formally correct, he must look whether the conclusion is true or false. Should it be true, he cannot solve the syllogism except by controverting one or both of the premisses; but should the conclusion be false, two modes of solution are open to him. One mode is, if he can point out an equivocation or amphiboly in the terms of the conclusion; another mode will be, to controvert, or exhibit a fallacy in, one of the premisses.[e]

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[a] Soph. El. xxii. p. 176 b. 14-20.

Both the text and the meaning of this difficult clause are differently given by various commentators. The text and construction of Waitz appears to me the best, and I have followed him. I cannot agree with Mr. Poste when he dclares (notes, p. 143) *ἀποφάνσεις* to be the true reading, instead of *ἀποφάσεις*, which last is adopted both by Bekker and in the edition of Firman Didot.

[b] Ibid. b. 20-25.

[c] Ibid. b. 26.

[d] Soph. El. xviii. p. 176, b. 29: *ἡ μὲν ὀρθὴ λύσις ἐμφάνισις ψευδοῦς συλλογισμοῦ, παρ' ὁποίαν ἐρώτησιν συμβαίνει τὸ ψεῦδος.*

[e] Soph. El. xviii. p. 176, b. 38: *τοὺς μὲν κατὰ τὸ συμπέρασμα ψευδεῖς διχῶς ἐνδέχεται λύειν· καὶ γὰρ τῷ ἀνελεῖν τι τῶν ἠρωτημένων, καὶ τῷ δεῖξαι τὸ συμπέρασμα ἔχον οὐχ οὕτως.*

Mr. Poste translates these last words—"or by a counterproof directed against the conclusion:" and he remarks in his note (pp. 145-147), "that this assertion—disproof of the conclusion of the refutative syllogism is one mode of *solution*—is both manifestly inadmissible, and flatly contradicted by Aristotle himself elsewhere." The words of Aristotle doubtless seem to countenance Mr. Poste's translation; yet the contradiction pointed out by Mr. Poste (and very imperfectly explained, p. 147) ought to make us look out for another meaning; which is suggested by the chapter immediately following (xix. p. 177, a. 9), where Aristotle treats of the Fallacies of Equivocation and Amphiboly. He tells us that equivocation may be found either in the conclusion or in the premisses; and that to show it in the conclusion is one mode of solving or invalidating the refutation. This is what Aristotle means by the

The respondent, however, must learn to apply this examination rapidly and unhesitatingly: to do so at once is very difficult, though it may be easily done if he has leisure to reflect.[a]

Aristotle then proceeds to indicate the modes in which the respondent may provide solutions for each of the thirteen heads of fallacious refutation above enumerated. For these thirteen classes, he pronounces that one and the same solution will be found applicable to all fallacies contained in one and the same class.[b]

Thus, in the two first of them—Equivocation of Terms and Amphiboly of Propositions—duplicity of meaning must be either in the conclusion, or in the premisses, of the refutative syllogism. If it be in the conclusion, the refutation must at once be rejected, unless the respondent has previously admitted some proposition containing the equivocal word as one of its terms, so that the refutation may appear to contradict it expressly and distinctly. But, if it be in the premisses, then there is no necessity that the respondent should have previously admitted such a proposition; for the equivocal word may form the middle term of the refutative syllogism, and may thus not appear in the conclusion thereof.[c] The proper way for the respondent to deal with these questions, involving equivocation or amphiboly, is to answer them, at the outset, with a reserve for the double meaning, thus: "In one sense, it is so; in another sense, it is not." If he does not perceive the double meaning until he has already answered the first question, he must recover himself, when he answers the second, by pointing out the equivocation more distinctly, and by specifying how much he is prepared to concede.[d] Even if he has been taken unawares, and has not perceived the equivocation until the refutative syllogism has been constructed simply and absolutely, he should still contend that he never meant to concede what has been apparently refuted, and that the refutation tells only against the name, not against the thing meant;[e] so that there is no genuine refutation at all.

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words cited at the beginning of this note: *τῷ δεῖξαι τὸ συμπέρασμα ἔχον οὐκ ὀρθῶς*. In Mr. Poste's translation these words mean the same as *ἀνελεῖν* used just before, which Aristotle obviously does not intend.

[a] Soph. El. xviii. p. 177, a. 7.

[b] Scholia, p. 312, a. 4, Br.; Soph. El. 20, p. 177, b. 31: *τῶν γὰρ παρὰ ταὐτὸν λόγων ἡ αὐτὴ λύσις*, &c.

[c] Soph. El. xix. p. 177, a. 18: *ὅσοις δ' ἐν τοῖς ἐρωτήμασιν, οὐκ ἀνάγκη προαποφῆσαι τὸ διττόν· οὐ γὰρ πρὸς τοῦτο ἀλλὰ διὰ τοῦτο ὁ λόγος.*

[d] Ibid. a. 24: *ἐὰν δὲ λάθῃ, ἐπὶ τέλει προστιθέντα τῇ ἐρωτήσει διορθωτέον·* &c.

[e] Ibid. a. 30: *ὅλως τε μαχετέον, ἂν καὶ ἁπλῶς συλλογίζηται, ὅτι οὐχ ὃ ἔφησεν ἀπέφησε πρᾶγμα, ἀλλ' ὄνομα· ὥστ' οὐκ ἔλεγχος·*

Instead of *ἂν καί*, Julius Pacius reads *κἄν*: the meaning is much the same.

In the next two Fallacies—those of Composition and Division, or Conjunction and Disjunction—when the questioner draws up his refutative syllogism as if one of the two had been conceded, the respondent will retort by saying that his concession was intended only in the other construction of the words. This fallacy is distinct from Equivocation; and it is a mistake to try (as some have tried) to reduce all fallacies to Equivocation or Amphiboly.[a] The respondent will distinguish, in each particular case, that construction of the words which he intended in his admission, from that which the questioner assumes in his pretended refutation.[b]

The Fallacies of Accent rarely furnish sophistical refutations,[c] but those of *Figura Dictionis* furnish a great many. When two words have the like form and structure, it may naturally be imagined that the signification of one belongs to the same Category as that of the other. But this is often an illusion; and in such cases a sophistical refutation may be founded thereupon. The respondent will solve it by denying the inference from similarity of form to similarity of meaning, and by distinguishing accurately to which among the ten Categories the meaning of each several word or each proposition belongs. When two words thus seem, by their form, to belong to the same Category, the questioner will often take it for granted, without expressly asking, that they do belong to the same, and will found a confutation thereupon; but the respondent must not admit the confutation to be valid, unless this question has been explicitly put to him and conceded.[d] A question is put which, in its direct and obvious meaning, bears only on the category of Quantity, of Quality, of Relation, of Action, or of Passion; but the respondent, not aware of the equivocation, answers it in such a manner as to comprehend the Category of Substance, and is so understood by the questioner when he constructs his refutative syllogism. The respondent will secure himself from being thus confuted, by keeping constantly in view to which of the Categories his answer is intended to refer.[e]

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[a] Soph. El. xx. p. 177, a. 33-b. 9. *οὐ πάντες οἱ ἔλεγχοι παρὰ τὸ διττόν, καθάπερ τινές φασιν.*

This is another of the evidences showing that there were theorists prior to Aristotle on logical proof; and that his declaration of originality (in the concluding chapter of Sophist. Elenchi) must be taken with reserve.

[b] Soph. El. xx. p. 177, b. 10-26: *διαιρετέον οὖν τῷ ἀποκρινομένῳ* &c.

[c] Ibid. xxi. p. 177, b. 35.

[d] Ibid. xxii. p. 178, a. 4-28. *τὸ γὰρ λοιπὸν αὐτὸς προστίθησιν ὁ ἀκούων ὡς ὁμοίως λεγόμενον· τὸ δὲ λέγεται μὲν οὐχ ὁμοίως, φαίνεται δὲ διὰ τὴν λέξιν.*

[e] Several illustrative examples of this mode of sophistical refutation, founded on the Fallacy called *Figura Dictionis*, are indicated in this chapter by Aristotle. The indication however, is often so brief and elliptical, that there is great diffi-

As a general rule, in all the refutations founded on the seven Fallacies *In Dictione*, the respondent will solve the refutation

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culty in restoring the fallacies in full, and still greater difficulty in translating them into any modern language.

1. Is it possible at the same time to do and to have done the same thing?—No. To see something is to do something; to have seen something is to have done something?—Yes. Is it possible at the same time to see and to have seen the same thing?—Yes.

The respondent has thus contradicted himself. The form of the word *ὁρᾶν* appears to rank it under the Category *ποιεῖν*. However, I think that the mistake really made here was, that the respondent returned an answer universally negative to the first question.

2. Does anything coming under the Category *Pati* come under the Category *Agere*?—No. But *τέμνεται*, *καίεται*, *αἰσθάνεται*, all show by their form that they belong to the Category *Pati*?—Yes. Again, *λέγειν*, *τρέχειν*, *ὁρᾶν*, show by their form that they belong to the Category *Agere*?—Yes. You will admit, however, that *τὸ ὁρᾶν* is *αἰσθάνεσθαί τι*?—Certainly. Therefore something that belongs to the Category *Agere* belongs also to that of *Pati*.

If we turn back to Aristot. Categ. viii. p. 11, a. 37, we shall find that he admits the possibility that the same subject may belong to two distinct Categories.

3. Did any one write that which stands here written?—Yes. It stands here written that you are standing up—a false statement; but when it was written the statement was true?—Yes. Therefore the writer has written a statement both true and false?—Yes.

Here *true* and *false* belong to the Category Quality; the statement or matter written belongs to that of Substance. What the writer wrote had nothing to do with the former of the two Categories; and no contradiction has been made out by admitting that the statement *was* once true and *is* now false.

4. Does a man tread that which he walks?—Yes. But he walks the whole day?—Yes. Therefore he treads the whole day.

Here the Category of *Quando* is confused with that of Substance.

5. But the most interesting illustration of this confusion of one Category with another, is furnished by Aristotle in respect of the difference between himself and Plato as to Ideas or Universals. According to Plato the universal term denoted a separate something apart from the particulars, yet of which each of these particulars partook. According to Aristotle it denoted nothing separate from the particulars, but something belonging (essentially or non-essentially) to all and each of the particulars. In the Platonic theory it was an *Hoc Aliquid* (*τόδε τι*), or had an existence substantive and separate: in the Aristotelian it was a *Quale* or *Quale Quid* (*ποιόν*), having an existence merely adjective or predicative. Aristotle maintains that Plato or the Platonists placed it in the wrong Category—in the Category of Substance instead of in that of Quality.

Now it is by rectifying this confusion of Categories that Aristotle solves two argumentative puzzles which he ranks as sophistical:—(1) The argument concluding in what was called the 'Third Man;' (2) The following question: Koriskus, and the musical Koriskus—are these the same, or is the second different from the first?

What is called the 'Third Man' was a refutation of the Platonic theory of Ideas. Because Plato recognized a substantive existence, corresponding to each common denomination connoting likeness, apart from all the similar particulars denominated, *e.g.*, a Self-man, or separate self-existent man, corresponding to the Idea, and apart from all individual men, Caius, &c.—opponents argued against him, saying:—If this is recognized, you must also recognize that the Self-man, and the individual man called Caius, have also a common denomination and similarity, which (upon your principles) corresponds to another Ideal Man, or a Third Man. You must, therefore, go on inferring upwards to a Fourth Man, a Fifth Man, &c., and so onwards to an indefinite number of Ideal Men, one above the other. This was intended as a refutation, by *Reductio ad Impossibile*, of the Platonic view of Ideas as separate Entities, each of them One and Universal. But Aristotle here treats it as a Sophistical Refutation; and he indicates what he calls the solution of it by saying that it confounds the Categories of Substance and Quality, putting the Universal (which ought to be under the Category of Quality) under the Category of Substance. He has no right, however, to include this among Sophistical Refutations, which are (as he himself defines them) not real but fallacious refutations, invented by a dishonest money-getting

by distinguishing the double meaning of the words or of the phrase, and by adopting as his own the one opposite to that which the questioner proceeds upon. If the Fallacy is of Conjunction and Disjunction, and if the questioner assumes Conjunction, the respondent will adopt Disjunction; if it be a Fallacy of Accent, and if the questioner assumes the grave accent, the respondent will adopt the acute.[a]

Passing to the Fallacies *Extra Dictionem*, where the sophistical refutation is founded upon a Fallacy of Accident, the respondent ought to apply one and the same solution to all. He will say:

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profession called Sophists, and which are solved by pointing out the precise seat of the fallacy. The refutation called the 'Third Man' is so far from being fallacious, that it is valid, and is recited as such elsewhere by Aristotle himself (Metaphs. A. ix. p. 990, b. 17; while the solution tendered by Aristotle, instead of being a solution, is a confirmation, pointing out, not where the fallacy of the refutation resides but, where the fallacy of the doctrine refuted resides. Moreover, if we are to treat the refutation called the 'Third Man' as sophistical, we must number Plato himself among the dishonest class called Sophists. Here is one among the many proofs that the strong line drawn by Aristotle between the Dialectician and the Sophist is quite untenable. The argument is distinctly enunciated in the Platonic Parmenides (pp. 131-133).

The meaning of the Universal (Aristotle maintains) must be considered as predicative only, tacked on to some *Hoc Aliquid*, and belonging to *Quale* or some other of the nine latter Categories. It may be set out as a distinct subject for logical consideration and reasoning: but it cannot be set out as a distinct existence beyond and apart from its particulars (παρὰ τοὺς πολλοὺς ἕν τι). It is ποιόν, and it cannot even be recognized as ὅπερ ποιόν or αὐτο-ποιόν, for this would put it apart from all the other ποιά, and would be open to the refutation above noticed called the 'Third Man.' Such is the drift of the very difficult passage of the Sophistici Elenchi (xxii. p. 178, b. 37-p. 179, a. 10). I differ from Mr. Poste's translation (p. 71) of part of this passage, and still more from the explanation given in the latter part of his note (p. 155). I think that the doctrine of τὸ ἓν παρὰ τὰ πολλά is produced by Aristotle here and elsewhere in his work as untrue and inadmissible, not as his own doctrine. Mr. Poste understands this passage differently from the previous translators, with whom I agree for the most part, though M. Barthélemy St. Hilaire appears to me to have missed the hinge upon which Aristotle's argument turns, by translating ὅπερ ποιόν — id ipsum, quod quale est (J. Pacius)—"une qualité:" the argument turns upon the distinction between ὅπερ ποιόν and ποιόν.

I come now to the second sophistical refutation given by Aristotle: Koriskus, and the musician Koriskus—are the two the same or different? This is what Aristotle calls a sophistical or fallacious argument (compare Metaphys. E. ii. p. 1026, b. 15); but it can hardly be so called with propriety, for the only solution that Aristotle himself gives of it is, that the two are *idem numero*, but in an improper or secondary sense (Topic. I. vii. p. 103, a. 30); *i.e.*, that they are in one point of view the same, in another point of view different—they are ἓν κατὰ συμβεβηκός. See Arist. Metaph. Δ. vi. p. 1015, b. 16; Scholia, p. 696, a. 22, seq.; and Alexand. Aphrodis. ad Metaph. pp. 321, 322, 414, 415, ed. Bonitz. I understand Aristotle to say that Κόρισκος μουσικός cannot be properly *set out* or abstracted (οὐκ ἔστιν αὐτὸ ἐκθέσθαι), because it includes two Categories (Substance and Quality) in one; wherefore it cannot be properly compared either with Κόρισκος simply (Category of Substance), or with μουσικός simply (Category of Quality). It seems strange that Aristotle does not notice this argumentative difficulty in the discussion which he bestows on ταὐτόν in the Seventh Book of the Topica. The subtle reasonings, very hard to follow, which Aristotle employs (Physic. V. iv. p. 227) might have made him cautious in treating the difficulties of opponents as so many dishonest cavils. It is curious that Alexander, in reciting the sophistical argument, assumes as a matter of course that ὁ γραμματικὸς Σωκράτης is ὁ αὐτὸς τῷ Σωκράτει (Schol. ad Metaphys. p. 736, b. 26, Brand.).

[a] Soph. El. xxiii. p. 179, a. 11-25.

"The conclusion does not necessarily follow from the premisses"; and he will be prepared with an example, in which the conclusion obtained under this fallacy is notoriously untrue.[a] "Do you know Koriskus?"—"Yes." "Do you know the distant person coming this way?"—"No." "That distant person is Koriskus: therefore you know, and you do not know, the same person." The inference here is not necessary. To be coming this way—is an accident of Koriskus; and, because you do not know the accident, we cannot infer that you do not know the subject; such may or may not be the case.[b]

The major premiss upon which the preceding sophistical refutation must rest, is, That it is impossible both to know and not to know the same thing. This must be put as a direct question by the questioner, and must be conceded by the respondent, before the intended refutation can be made good. Now there are some persons who solve the refutation by answering this question in the negative, and by saying that it is possible both to know and not to know the same thing, only not in the same respect: such is the case when we know Koriskus, but do not know Koriskus approaching from a distance.[c] Aristotle disapproves this mode of solution, as well as another mode which refers the fallacy to equivocation of terms. He points out that there are many other sophistical refutations, coming under the general head of *Fallaciæ Accidentis*, to which such solution will not apply; and that there ought to be one uniform mode of solution applicable to every fallacy coming under the same general head; though he admits at the same time that particular sophistical refutations may be vicious in more than one way. He says, moreover, that this contradiction or negation of the premiss is no true solution; for a solution ought to bring to view clearly the reason why the fallacious refutation appears to be a real refutation. Thus the

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[a] Soph. El. xxiv. p. 179, a. 30: *ῥητέον οὖν συμβιβασθέντας ὁμοίως πρὸς ἅπαντας ὅτι οὐκ ἀναγκαῖον· ἔχειν δὲ δεῖ προφέρειν τὸ οἷον.*

[b] Ibid. a. 35-b. 7.

[c] Ibid. b. 7, 18, 37: *λύουσι δέ τινες ἀναιροῦντες τὴν ἐρώτησιν· φασὶ γὰρ ἐνδέχεσθαι ταὐτὸ πρᾶγμα εἰδέναι καὶ ἀγνοεῖν, ἀλλὰ μὴ κατὰ τοὐτό.*

Mr. Poste (pp. 152-157) translates *ἀναιροῦντες τὴν ἐρώτησιν*—"contradicting the thesis," and he expresses his surprise at the assertion, observing (very truly) that contradiction of the thesis is the very opposite of a solution; it helps in the very work which the refutation aims at accomplishing. But I cannot think that *ἐρώτησις* does mean "the thesis," either here or in the other passage to which Mr. Poste refers (xxii. p. 178, b. 14). I think it means a premiss which the respondent has conceded, or must be presumed to have conceded, essential to the validity of the refutation. The term *ἐρώτησις* cannot surely, with any propriety, be applied to the thesis. It means either a question, or what is conceded in reply to a question; and the *thesis* cannot come under either one meaning or the other, being the proposition which the respondent sets out by affirming and undertakes to defend.

Fallacia Accidentis consists in an inference that what is true of an accident is true also of the subject thereof: you explain that such inference, though apparently cogent, has no real cogency, and in that explanation consists the only proper solution of the fallacy.[a]

In like manner, all those Fallacies which come under the general head of *A dicto Secundum Quid ad dictum Simpliciter*, can only be solved by pointing out, in each particular case, in what terms this confusion is concealed—wherein resides the inference apparently cogent which is mistaken for one really cogent. The respondent is driven to an apparent contradiction, by having granted premisses from which the inference is derivable that both sides of the *Antiphasis* are true—that the same predicate A may be both affirmed and denied of the same subject B. He solves the contradiction by analysing the *Antiphasis*, and by showing that affirmation is *secundum quid*, while denial is *simpliciter;* and that there is a contradiction not real, but only apparent, between the two.[b]

In like manner, the Fallacy *Ignoratio Elenchi* will be solved by analysing the two supposed counter-propositions of the *Antiphasis*, and by showing that there is no real contradiction or inconsistency between them.[c]

In regard to the Fallacies under *Petitio Principii*, the respondent if he perceives that the premiss asked of him involves such a fallacy, must refuse to grant it, however probable it may be in itself. If he does not perceive this until after he has granted it, he must throw back the charge of mal-procedure upon the questioner; declaring that an Elenchus involving assumption of the matter in question is null, and that the concession was made under the supposition that some separate and independent syllogism was in contemplation.[d]

There are two distinct ways in which the *Fallacia Consequentis* may be employed. The predicate may be an universal, comprehending the subject: because animal always goes along with man, it is falsely inferred that man always goes along with animal; or it is falsely inferred that not-animal always goes along with not-man. The fallacy is solved when this is pointed out. The last inference is only valid when the terms are inverted; if animal always goes along with man, not-man will always go along with not-animal.[e]

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[a] Soph. El. xxiv. p. 179, b. 23: ἦν γὰρ ἡ λύσις ἐμφάνισις ψευδοῦς συλλογισμοῦ, παρ' ὃ ψευδής.

[b] Ibid. xxv. p. 180, a. 23-31.

[c] Ibid. xxvi. p. 181, a. 1-14.

[d] Ibid. xxvii. p. 181, a. 15-21.

[e] Ibid. xxviii. p. 181, a. 22-30. ἀνάπαλιν γὰρ ἡ ἀκολούθησις.

If the sophistical refutation includes more premisses than are indispensable to the conclusion, the respondent, after having satisfied himself that this is the fact, will point out the mal-procedure of the questioner, and will say that he conceded the superfluous premiss, not because it was in itself probable but, because it seemed relevant to the debate; while nevertheless the questioner has made no real or legitimate application of it towards that object.[a] This is the mode of solution applicable in the case of the Fallacies coming under the head *Non Causa pro Causâ*.[b]

Where the sophistical questioner tries to refute by the *Fallacia Plurium Interrogationum* (*i.e.*, by putting two or more questions as one), the respondent should forthwith divide the complex question into its component simple questions, and make answer accordingly. He must not give one answer, either affirmative or negative, to that which is more than one question. Even if he does give one answer, he may sometimes not involve himself in any contradiction; for it may happen that the same predicate is truly affirmable, or truly deniable, of two or more distinct and independent subjects. Often, however, the contrary is the case: no one true answer, either affirmative or negative, can be given to one of these complex questions: the one answer given, whatever it be, must always be partially false or inconsistent.[c] Suppose two subjects, A and B, one good, the other bad: if the question be, Whether A and B are good or bad, it will be equally true to say—Both are good, or, Both are bad, or, Both are neither good nor bad. There may indeed be other solutions for this fallacy: Both or All may signify two or more items taken individually, or taken collectively; but the only sure precaution is—one answer to one question.[d]

Suppose that, instead of aiming at a seeming refutation, the Sophist tries to convict the respondent of Tautology. The source of this embarrassment is commonly the fact that a relative term is often used and conveys clear meaning without its correlate, though the correlate is always implied and understood. The respondent must avoid this trap by refusing to grant that the relative has any meaning at all without its correlate; and by requiring that the correlate shall be distinctly enunciated along with it. He ought to treat the relative without its correlate as merely a part of the whole significant expression—as merely syncategorematic; just as ten is in the phrase—ten

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[a] Soph. El. xxix. p. 181, a. 31-35.

[b] Schol. p. 318, a. 36, Br.

[c] Soph. El. xxx. p. 181, a. 38: *οὔτε πλείω καθ' ἑνὸς οὔτε ἓν κατὰ πολλῶν, ἀλλ' ἓν καθ' ἑνὸς φατέον ἢ ἀποφατέον.*

[d] Ibid. b. 6-25.

minus one, or as the affirmative word is in a negative proposition.[a] Thus he will not recognize double as significant by itself without its correlate half, nor half without its correlate double; although in common parlance such correlate is often understood without being formally enunciated.

Lastly, another purpose which Aristotle ascribes to the Sophist, is that of driving the respondent into a Solecism—into some grammatical or syntactical impropriety, such as, using a noun in the wrong case or gender, using a pronoun with a different gender or number from the noun to which it belongs, &c. He points out that the solution of these verbal puzzles must be different for each particular case; in general, when thrown into a regular syllogistic form, even the questioner himself will be found to speak bad Greek. The examples given by Aristotle do not admit of being translated into a modern language, so as to preserve the solecism that constitutes their pecularity.[b]

After having thus gone through the different artifices ascribed to the Sophist, and the ways of solving or meeting them, Aristotle remarks that there are material distinctions between the different cases which fall under one and the same general head of Sophistical[b] Paralogism. Some cases there are in which both the fallacy itself, and the particular point upon which it turns, are obvious and discernible at first sight. In other cases, again, an ordinary person does not perceive that there is any fallacy at all; or, if he does perceive it, he often does not detect the seat of the fallacy, so that one man will refer the case to one general head, and another, to a different one.[c] Thus, for example, Fallacies of Equivocation are perhaps the most frequent and numerous of all fallacies; some of them are childish and jocular, not really imposing upon any one; but there are others again in which the double meaning of a word is at first unnoticed, and is disputed even when pointed out, so that it can only be brought to light by the most careful and subtle analysis. This happens especially with terms that are highly abstract and general: which are treated by many, including even philosphers like Parmenides and Zeno, as if they were not equivocal at all,

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[a] Soph. El. xxxi. p. 181, b. 26: *οὐ δοτέον τῶν πρός τι λεγομένων σημαίνειν τι χωριζομένας καθ' αὐτὰς τὰς κατηγορίας.*

Mr. Poste observes in his note:—"The sophistic locus of tautology may be considered as a caricature of a dialectic locus. One fault which dialectic criticism finds with a definition is the introduction of superfluous words." He then cites Topic. VI. ii. (p. 141, a. 4, seq.); but in this passage we find that the repetition of the same word is declared not to be an argumentative impropriety, so that the Sophist would gain nothing by driving his opponent into tautology.

[b] Soph. El. xxxii. p. 182, a. 7-b. 5.

[c] Ibid. xxxiii. p. 182, b. 6-12.

but univocal.[a] Again, the *Fallaciæ Accidentis*, and the other classes *Extra Dictionem*, are also often hard to detect. On the whole, it is often hard to determine, not merely to which of the classes any case of fallacy belongs, but even whether there is any fallacy at all—whether the refutation is, or is not, a valid one.[b]

The pungent arguments in debate are those which bite most keenly, and create the greatest amount of embarrassment and puzzle.[c] In dialectical debate a puzzle arises, when the respondent finds that a correct syllogism has been established against him, and when he does not at once see which among its premisses he ought to controvert, in order to overthrow the conclusion. In the eristic or sophistic debate the puzzle of the respondent is, in what language to enunciate his propositions so as to keep clear of the subtle objections which will be brought against him by the questioner.[d] It is these pungent arguments that most effectually stimulate the mind to investigation. The most pungent of all is, where the syllogistic premisses are highly probable, yet where they nevertheless negative a conclusion which is also highly probable. Here we have an equal antithesis as to presumptive credibility, between the premisses taken together on one side and the conclusion on the other.[e] We do not know

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[a] Soph. El. xxxiii. p. 182, b. 13-25: *ὥσπερ οὖν ἐν τοῖς παρὰ τὴν ὁμωνυμίαν, ὅσπερ δοκεῖ τρόπος εὐηθέστατος εἶναι τῶν παραλογισμῶν, τὰ μὲν καὶ τοῖς τυχοῦσίν ἐστι δῆλα—τὰ δὲ καὶ τοὺς ἐμπειροτάτους φαίνεται λανθάνειν· σημεῖον δὲ τούτων ὅτι μάχονται πολλάκις περὶ ὀνομάτων, οἷον πότερον ταὐτὸ σημαίνει κατὰ πάντων τὸ ὂν καὶ τὸ ἓν ἢ ἕτερον.*

[b] Ibid. b. 27: *ὁμοίως δὲ καὶ περὶ τοῦ συμβεβηκότος καὶ περὶ τῶν ἄλλων ἕκαστον, οἱ μὲν ἔσονται ῥᾴους ἰδεῖν οἱ δὲ χαλεπώτεροι τῶν λόγων· καὶ λαβεῖν ἐν τινι γένει, καὶ πότερον ἔλεγχος ἢ οὐκ ἔλεγχος, οὐ ῥᾴδιον ὁμοίως περὶ πάντων.*

[c] Ibid. 32: *ἔστι δὲ δριμὺς λόγος ὅστις ἀπορεῖν ποιεῖ μάλιστα· δάκνει γὰρ οὗτος μάλιστα.*

[d] Soph. El. xxxiii. p. 182, b. 33: *ἀπορία δ' ἐστὶ διττή, ἡ μὲν ἐν τοῖς συλλελογισμένοις, ὅ τι ἀνέλῃ τις τῶν ἐρωτημάτων, ἡ δ' ἐν τοῖς ἐριστικοῖς, πῶς εἴπῃ τις τὸ προταθέν.* The difficulty here pointed out, of finding language not open to some logical objection by an acute Sophist, is illustrated by what he himself states about the caution required for guarding his definitions against attack; see De Interpret. vi. p. 17, a. 34: *λέγω δὲ ἀντικεῖσθαι τὴν τοῦ αὐτοῦ κατὰ τοῦ αὐτοῦ, μὴ ὁμωνύμως δέ, καὶ ὅσα ἄλλα προσδιοριζόμεθα πρὸς τὰς σοφιστικὰς ἐνοχλήσεις.* What is here meant by *σοφιστικαὶ ἐνοχλήσεις* is expressed elsewhere by *πρὸς τὰς λογικὰς δυσχερείας.*—Metaphys. Γ. iii. p. 1005, b. 21; N. i. p. 1087, b. 20. See the Scholia (pp. 112, 651, Br.) of Ammonius and Alexander upon the above passages of De Interpr. and Metaphs.

[e] Soph. El. xxxiii. p. 182, b. 37-p. 183, a. 4: *ἔστι δὲ συλλογιστικὸς μὲν λόγος δριμύτατος, ἂν ἐξ ὅτι μάλιστα δοκούντων ὅτι μάλιστα ἔνδοξον ἀναιρῇ· εἷς γὰρ ὢν ὁ λόγος, μετατιθεμένης τῆς ἀντιφάσεως, ἅπαντας ὁμοίους ἕξει τοὺς συλλογισμούς· ἀεὶ γὰρ ἐξ ἐνδόξων ὁμοίως ἔνδοξον ἀναιρήσει [ἢ κατασκευάσει]· διόπερ ἀπορεῖν ἀναγκαῖον. μάλιστα μὲν οὖν ὁ τοιοῦτος δριμύς, ὁ ἐξ ἴσου τὸ συμπέρασμα ποιῶν τοῖς ἐρωτήμασι.* I transcribe this text as it is given by Bekker, Waitz, Bussemaker, and Mr. Poste. The editions anterior to Bekker had the additional words *ἢ κατασκευάζῃ* after *ἀναιρῇ* in the fourth line; and M. Barthélemy St. Hilaire in his translation defends and retains them. Bekker and the subsequent editors have omitted them, but have retained the last words *ἢ κατασκευάσει* in the seventh line. To me this seems inconsistent: the words ought

whether it is in the premisses only, or in the conclusion, that we are to look for untruth: the conclusion, though improbable, may yet be true, while we may find that the true conclusion has been obtained from untrue premisses; or the conclusion may be both improbable and untrue, in which case we must look for untruth in one of the premisses also—either the major or the minor. This is the most embarrassing position of all. Another, rather less embarrassing, is, where our thesis will be confuted unless we can show the confuting conclusion to be untrue, but where each of the premisses on which the conclusion depends is equally probable, so that we do not at once see in which of them the cause of its untruth is to be sought. These two are the most pungent and perplexing argumentative conjunctures of dialectical debate.

But in eristic or sophistic debate our greatest embarrassment as respondents will arise when we do not at once see whether the refutative syllogism brought against us is conclusive or not, and whether it is to be solved by negation or by distinction.[a] Next in order as to embarrassment stands the case, where we see in which of the two processes (negation or distinction) we are to find our solution, yet without seeing on which of the premisses we are to bring the process to bear; or whether, if distinction be the process required, we are to apply it to the conclusion, or to one of the premisses.[b] A defective syllogistic argument is

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either to be retained in both places or omitted in both. I think they ought to be omitted in both. I have enclosed them in brackets in the fifth line.

This difficult passage (not well explained by Alexander, Schol. p. 320, b. 9) requires the explanations of Waitz and Mr. Poste. The note of Mr. Poste is particularly instructive, because he expands in full (p. 164) the three "similar syllogisms" to which Aristotle here briefly alludes. The phrase *μετατιθεμένης τῆς ἀντιφάσεως* is determined by a passage in Analyt. Priora, II. viii. p. 59, b. 1: it means "employment of the contradictory of the conclusion, in combination with either one of the premisses, to upset the other." The original syllogism is assumed to have two premisses, each highly probable, while the conclusion is highly improbable, being the negation of a highly probable proposition. The original syllogism will stand thus: All M is P; All S is M; *Ergo*, All S is P: the two premisses being supposed highly probable, and the conclusion highly improbable. Of course, therefore, the contradictory of the conclusion will be highly probable—Some S is not P. We take this contradictory and employ it to construct two new syllogisms as follows:—All M is P; Some S is not P; *Ergo*, Some S is not M. And again, Some S is not P; All S is M; *Ergo*, Some M is not P. All these three syllogisms are similar in this respect: that each has two highly probable premisses, while the conclusion is highly improbable.

[a] Soph. El. xxxiii. p. 183, a. 7.

[b] Ibid. a. 9: *δεύτερος δὲ τῶν ἄλλων ὁ δῆλος μὲν ὅτι παρὰ διαίρεσιν ἢ ἀναίρεσίν ἐστι, μὴ φανερὸς δ' ὢν διὰ τίνος τῶν ἠρωτημένων ἀναίρεσιν ἢ διαίρεσιν λυτέος ἐστίν, ἀλλὰ πότερον αὕτη παρὰ τὸ συμπέρασμα ἢ παρά τι τῶν ἐρωτημάτων ἐστίν.*

Mr. Poste translates these last words very correctly:—"Whether it is one of the premisses or the conclusion that requires distinction." Here Aristotle again speaks of a mode of solution furnished by applying *distinction* (*διαίρεσις*) to *the conclusion* as well as to the premisses, though he does not say that solution can be furnished by applying *disproof* (*ἀναίρεσις*) to *the conclusion*. See my remarks, a few pages above, on Mr. Poste's note respecting ch. xviii. (supra, p. 406).

silly, when the deficient points are of capital importance—relating to the minor or to the middle term, or when the assumptions are false and strange; but it will sometimes be worthy of attention, if the points deficient are outlying and easily supplied; in which cases it is the carelessness of the questioner that is to blame, rather than the argument itself.[a] Both the line of argument taken by the questioner, and the mode of solution adopted by the respondent, may be directed towards any one of three distinct purposes: either to the thesis and main subject discussed; or to the adversary personally (*i.e.*, to the particular way in which he has been arguing); or to neither of these, but simply to prolong the discussion (*i.e.*, against time). The solution may thus be sometimes such that it would take more time to argue upon it than the patience of the auditors will allow.[b]

The last chapter of the Sophistici Elenchi is employed by Aristotle in recapitulating the scope and procedure of the nine Books of Topica (reckoning the Sophistici Elenchi as the Ninth, as we ought in propriety to do); and in appreciating the general bearing and value of that treatise, having regard to the practice and theory of the day.

The business of Dialectic and Peirastic is to find and apply the syllogizing process to any given thesis, with premisses the most probable that can be obtained bearing on the thesis. This Aristotle treats as the proper function of Dialectic *per se* and of Peirastic; considering both—the last, of course—as referring wholly to the questioner. His purpose is to investigate and impart this syllogizing power—the power of questioning and cross-examining a respondent who sets up a given thesis, so as to drive him into inconsistent answers. It appears that Aristotle would not have cared to teach the respondent how he might defend himself against this procedure, if there had not happened to be another art—Sophistic, closely bordering on Dialectic and Peirastic. He considers it indispensable to furnish the respondent with defensive armour against sophistical cross-examination; and this could not be done without teaching him at the same time modes of defence against the cross-examination of Dialectic and Peirastic. For this reason it is (Aristotle tell us[c]) that he has included in the Topica precepts

[a] Soph. El. xxxiii. p. 183, a. 14-20.

[b] Ibid. a. 21.

[c] Ibid. xxxiv. p. 183, a. 37-b. 8: προειλόμεθα μὲν οὖν εὑρεῖν δύναμίν τινα συλλογιστικὴν περὶ τοῦ προβληθέντος ἐκ τῶν ὑπαρχόντων ὡς ἐνδοξοτάτων· τοῦτο γὰρ ἔργον ἐστὶ τῆς διαλεκτικῆς καθ' αὑτὴν καὶ τῆς πειραστικῆς. ἐπεὶ δὲ προσκατασκευάζεται πρὸς αὐτὴν διὰ τὴν τῆς σοφιστικῆς γειτνίασιν, ὡς οὐ μόνον πεῖραν δύναται λαβεῖν διαλεκτικῶς, ἀλλὰ καὶ ὡς εἰδώς, διὰ τοῦτο οὐ μόνον τὸ λεχθὲν ἔργον ὑπεθέμεθα τῆς πραγματείας τὸ λόγον δύνασθαι λαβεῖν,

on the best mode of defending the thesis by the most probable arguments, as well as of impugning it. The respondent professes to know (while the questioner does not), and must be taught how to maintain his thesis like a man of knowledge. Sokrates, the prince of dialecticians, did nothing but question and cross-examine: he would never be respondent at all; for he explicitly disclaimed knowledge. And if it were not for the neighbourhood of Sophistic, Aristotle would have thought it sufficient to teach a procedure like that of Sokrates. It was the danger from sophistical cross-examination that led him to enlarge his scheme—to unmask the Sophists by enumerating the paralogisms peculiar to them, and to indicate the proper scheme of the responses and solutions whereby the respondent might defend himself against them. We remember that Aristotle treats all paralogisms and fallacies as if they belonged to a peculiar art or profession called Sophistic, and as if they were employed by Sophists exclusively; as if the Dialecticians and the Peirasts, including among them Sokrates and Plato, put all their questions without ever resorting to or falling into paralogisms.

Aristotle, we have already more than once seen, asserts emphatically his claim to originality as having been the first to treat these subjects theoretically, and to suggest precepts founded on the theory. On all important subjects (he remarks) the elaboration of any good theory is a gradual process, the work of

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ἀλλὰ καὶ ὅπως λόγον ὑπέχοντες φυλάξομεν τὴν θέσιν ὡς δι' ἐνδοξοτάτων ὁμοτρόπως. τὴν δ' αἰτίαν εἰρήκαμεν τούτου, ἐπεὶ καὶ διὰ τοῦτο Σωκράτης ἠρώτα ἀλλ' οὐκ ἀπεκρίνετο· ὡμολόγει γὰρ οὐκ εἰδέναι.

It appears to me that in one line of this remarkable passage a word has dropped out which is necessary to the sense. We now read (about the middle) *ὡς οὐ μόνον πεῖραν δύναται λαβεῖν διαλεκτικῶς, ἀλλὰ καὶ ὡς εἰδώς.* Now the words *πεῖραν λαβεῖν*, as the passage stands, must be construed along with *ὡς εἰδώς*, and this makes no meaning at all, or an inadmissible meaning. I think it clear that the word *ὑπέχειν* or *δοῦναι* has dropped out before *εἰδώς*. The passage will then stand:—*ὡς οὐ μόνον πεῖραν δύναται λαβεῖν διαλεκτικῶς, ἀλλὰ καὶ ὑπέχειν* (or *δοῦναι*) *ὡς εἰδώς.* When this verb is supplied the sense will be quite in harmony with what follows, which at present it is not. *Πεῖραν λαβεῖν* applies to the questioner, but not to the respondent; *ὡς εἰδώς* applies to the respondent, but not to the questioner; *πεῖραν ὑπέχειν* applies to the respondent, and is therefore the fit concomitant of *ὡς εἰδώς*. The translation given by Mr. Poste *first* (p. 93):—"professing not only to test knowledge with the resources of Dialectic, but also to maintain any thesis with the infallibility of science"—appears to me (excepting the word *infallibility*, which is unsuitable) to render Aristotle's thought, though not his words as they now stand; but Mr. Poste has given what he thinks an amended translation (p. 170);—"Since it claims the power of catechizing or cross-examining not only dialectically but also scientifically." This second translation may approach more nearly to the present words of Aristotle, but it departs more widely from his sense and doctrine. Aristotle does not claim for either Dialecticians or Sophists the power of cross-examining scientifically. He ascribes to the Sophists nothing but cavil and fallacy—verbal and extra-verbal—the pretence and sham of being wise or knowing (Soph. El. i., ii. p. 165).

several successive authors. The first beginnings are very imperfect and rudimentary; upon these, however, subsequent authors build, both correcting and enlarging, until, after some considerable time, a tolerably complete scheme or system comes to be constructed. Such has been the case with Rhetoric and other arts. Tisias was the first writer and preceptor on Rhetoric, yet with poor and insufficient effect. To him succeeded Thrasymachus, next Theodorus, and various others; from each of whom partial improvements and additions were derived, until at length we have now (it is Aristotle that speaks) a copious body of rhetorical theory and precept, inherited from predecessors and accumulated by successive traditions. Compared with this, the earliest attempt at theory was indeed narrow and imperfect; but it was nevertheless the first step in a great work, and, as such, it was the most difficult and the most important. The task of building on a foundation already laid, is far easier.[a]

While rhetorical theory has thus been gradually worked up to maturity, the case has been altogether different with Dialectic. In this I (Aristotle) found no basis prepared; no predecessor to follow; no models to copy. I had to begin from the beginning, and to make good the first step myself. The process of syllogizing had never yet been analysed or explained by any one; much less had anything been set forth about the different applications of it in detail. I worked it out for myself, without any assistance, by long and laborious application.[b] There existed indeed paid teachers, both in Dialectic and in Eristic (or Sophistic); but their teaching has been entirely without analysis, or theory, or system. Just as rhetoricians gave to their pupils orations to learn by heart, so these dialectical teachers gave out dialogues to learn by heart upon those subjects which they thought most likely to become the topics of discourse. They thus imparted to their pupils a certain readiness and fluency; but they communicated no art, no rational conception of what was to be sought or avoided, no skill or power of dealing with new circumstances.[c] They proceeded like men, who, pro-

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[a] Soph. El. xxxiv. p. 183, b. 17-26: τῶν γὰρ εὑρισκομένων ἁπάντων τὰ μὲν παρ' ἑτέρων ληφθέντα πρότερον πεπονημένα κατὰ μέρος ἐπιδέδωκεν ὑπὸ τῶν παραλαβόντων ὕστερον· τὰ δ' ἐξ ὑπαρχῆς εὑρισκόμενα μικρὰν τὸ πρῶτον ἐπίδοσιν λαμβάνειν εἴωθε, χρησιμωτέραν μέντοι πολλῷ τῆς ὕστερον ἐκ τούτων αὐξήσεως· μέγιστον γὰρ ἴσως ἀρχὴ παντός, ὥσπερ λέγεται· διὸ καὶ χαλεπώτατον· ὅσῳ γὰρ κράτιστον τῇ δυνάμει, τοσούτῳ μικοοτατον ὂν τῷ μεγέθει χαλεπώτατόν ἐστιν ὀφθῆναι· ταύτης δ' εὑρημένης ῥᾷον προστιθέναι καὶ συναύξειν τὸ λοιπόν ἐστιν.

[b] Soph. El. xxxiv. p. 184, a. 8: καὶ περὶ μὲν τῶν ῥητορικῶν ὑπῆρχε πολλὰ καὶ παλαιὰ τὰ λεγόμενα, περὶ δὲ τοῦ συλλογίζεσθαι παντελῶς οὐδὲν εἴχομεν πρότερον ἄλλο λέγειν, ἀλλ' ἢ τριβῇ ζητοῦντες πολὺν χρόνον ἐπονοῦμεν.

[c] Ibid. a. 1: διόπερ ταχεῖα μὲν ἄτεχνος δ' ἦν ἡ διδασκαλία τοῖς μανθάνουσι παρ'

fessing to show how comfortable covering might be provided for the feet, should not teach the pupil how he could make shoes for himself, but should merely furnish him with a good stock of ready-made shoes—a present valuable indeed for use, but quite unconnected with any skill as an artificer. The syllogism as a system and theory, with precepts founded on that theory for Demonstration and Dialectic, has originated first with me (Aristotle). Mine is the first step, and therefore a small one, though worked out with much thought and hard labour: it must be looked at as a first step, and judged with indulgence. You, my readers, or hearers of my lectures, if you think that I have done as much as can fairly be required for an initiatory start, compared with other more advanced departments of theory, will acknowledge what I have achieved, and pardon what I have left for others to accomplish.[a]

Such is the impressive closing chapter of the Sophistici Elenchi. It is remarkable in two ways: first, that Aristotle expressly addresses himself to hearers and readers in the second person; next, that he asserts emphatically his own claim to originality as a theorist on Logic, and declares himself to have worked out even the first beginnings of such theory by laborious application. I understand his claim to originality as intended to bear, not simply on the treatise called Sophistici Elenchi and on the enumeration of Fallacies therein contained, but, in a larger sense, on the theory of the Syllogism; as first unfolded in the Analytica Priora, applied to Demonstration in the Analytica Posteriora, applied afterwards to Dialectic in the Topica, applied lastly to Sophistic (or Eristic) in the Sophistici Elenchi. The phrase, "Respecting the *process of syllogizing*,[b] I found absolutely nothing prepared, but worked it out by laborious application for myself"—seems plainly to denote this large

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αὐτῶν· οὐ γὰρ τέχνην ἀλλὰ τὰ ἀπὸ τῆς τέχνης διδόντες παιδεύειν ὑπελάμβονον.

Cicero, in describing his own treatise De Oratore, insists upon the marked difference between his mode of treatment and the common rhetorical precepts; he claims to have followed the manner of the Aristotelian Dialogues:—"Scripsi Aristoteleo more, quemadmodum quidem volui, tres libros in disputatione ac dialogo de Oratore, quos arbitror Lentulo tuo fore non inutiles. Abhorrent enim a communibus præceptis, atque omnem antiquorum et Aristoteleam et Isocrateam rationem oratoriam complectuntur" (Cicero, Epist. ad Famill. i. 9).

[a] Soph. El. xxxiv. p. 184, b. 3: *εἰ δὲ φαίνεται θεασαμένοις ὑμῖν ὡς ἐκ τοιούτων ἐξ ἀρχῆς ὑπαρχόντων ἔχειν ἡ μεθόδος ἱκανῶς παρὰ τάς ἄλλας πραγματείας τὰς ἐκ παραδόσεως ηὐξημένας, λοιπὸν ἂν εἴη πάντων ὑμῶν ἢ τῶν ἠκροαμένων ἔργον τοῖς μὲν παραλελειμμένοις τῆς μεθόδου συγγνώμην τοῖς δ' εὑρημένοις πολλὴν ἔχειν χάριν.*

It would seem that by *τοῖς θεασαμένοις* Aristotle means to address the readers of the present treatise, while by *τῶν ἠκροαμένων* he designates those who had heard his oral expositions on the same subject.

[b] Soph. El. xxxiv. p. 184, b. 1: *περὶ δὲ τοῦ συλλογίζεσθαι παντελῶς οὐδὲν εἴχομεν πρότερον ἄλλο λέγειν*, &c. (cited in a preceding note).

comprehension. And, indeed, in respect to Sophistic separately, the remark of Aristotle that nothing whatever had been done before him, would not be well founded: we find in his own treatise of the Sophistici Elenchi allusion to various prior doctrines, from which he dissents.[a] In these prior doctrines, however, his predecessors had treated the sophistical modes of refutation without reference to the Syllogism and its general theory.[b] It is against such separation that Aristotle distinctly protests. He insists upon the necessity of first expounding the Syllogism, and of discussing the laws of good or bad Refutation as a corollary or dependant of the syllogistic theory. Accordingly he begins this treatise by intimating that he intends to deduce these laws from the first and highest generalities of the subject;[c] and he concludes it by claiming this method of philosophizing as original with himself.

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[a] See note [d], p. 402.

[b] Soph. El. x. p. 171, a. 1: ὅλως τε ἄτοπον, τὸ περὶ ἐλέγχου διαλέγεσθαι, ἀλλὰ μὴ πρότερον περὶ συλλογισμοῦ· ὁ γὰρ ἔλεγχος συλλογισμός ἐστιν, ὥστε χρὴ καὶ περὶ συλλογισμοῦ πρότερον ἢ περὶ ψευδοῦς ἐλέγχου.

[c] Ibid. i. p. 164, a. 21: λέγωμεν, ἀρξάμενοι κατὰ φύσιν ἀπὸ τῶν πρώτων.

CHAPTER XI.

PHYSICA AND METAPHYSICA.

ARISTOTLE distinguishes, in clear and explicit language, a science which he terms Wisdom, Philosophy, or First Philosophy; the subject-matter of which he declares to be *Ens quatenus Ens*, together with the concomitants belonging to it as such. With this Ontology the treatise entitled Metaphysica purports to deal, and the larger portion of it does really so deal. At the same time, the line that parts off Ontology from Logic (Analytic and Dialectic) on the one hand, and from Physics on the other, is not always clearly marked. For, though the whole process of Syllogism, employed both in Analytic and Dialectic, involves and depends upon the Maxim of Contradiction, yet the discussion of this Maxim is declared to belong to First Philosophy;[a] while not only the four Aristotelian varieties of Cause or Condition, and the distinction between Potential and Actual, but also the abstractions Form, Matter and Privation, which play so capital a part in the Metaphysica, are equally essential and equally appealed to in the Physica.[b]

If we include both what is treated in the Analytica Posteriora (the scientific explanation of Essence and Definition) and what is treated in the Physica, we shall find that nearly all the expository processes employed in the Metaphysica are employed also in these two treatises. To look upon the general notion as a cause, and to treat it as a creative force (*der schöpferische Wesensbegriff*, to use the phrase of Prantl and other German logicians[c]), belongs alike to the Physica and to the Analytica Posteriora. The characteristic distinction of the treatise entitled Metaphysica is, that it is all-comprehensive in respect to the ground covered; that the expository process is applied,

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[a] Metaphys. Γ. iii. p. 1005, a 19-b. 11. Whether that discussion properly belongs to *Philosophia Prima*, or not, stands as the first 'Απορία enumerated in the list which occupies Book B. in that treatise, p. 995, b. 4-13; compare K. i. p. 1059, a. 24.

[b] Physica, I. pp. 190-191; II. p. 194, b. 20, seq.; Metaph. A. p. 983, a. 33; Alexander ad Metaphys. Δ. p. 306, ed. Bonitz; p. 689, b. Schol. Br.

[c] See ch. viii. pp. 240 seq. of the present work, with the citations in note [b], p. 252, from Prantl and Rassow.

not exclusively to any separate branch of *Ens*, but to *Ens* as a whole *quatenus Ens*—to all the varieties of *Ens* that admit of scientific treatment at all;[a] that the same abstractions and analytical distinctions, which, both in the Analytica and in the Physica, are indicated and made to serve an explanatory purpose, up to a certain point—are in the Metaphysica sometimes assumed as already familiar, sometimes followed out with nicer accuracy and subtlety.[b] Indeed both the Physica and the Metaphysica, as we read them in Aristotle, would be considered in modern times as belonging alike to the department of Metaphysics.

The primary distinction and classification recognized by Aristotle among Sciences or Cognitions, is, that of (1) Theoretical, (2) Practical, (3) Artistic or Constructive.[c] Of these three divisions, the second and third alike comprise both intelligence and action, but the two are distinguished from each other by this—that in the Artistic there is always some assignable product which the agency leaves behind independent of itself, whereas in the Practical no such independent result remains,[d] but the agency itself, together with the purpose (or intellectual and volitional condition) of the agent, is every thing. The division named Theoretical comprises intelligence alone—intelligence of *principia*, causes and constituent elements. Here again we find a tripartite classification. The highest and most universal of all Theoretical Sciences is recognized by Aristotle as Ontology (First Philosophy, sometimes called by him Theology) which deals with all *Ens* universally *quatenus Ens*, and with the *Prima Moventia*, themselves immoveable, of the entire Kosmos. The two other heads of Theoretical Science are Mathematics and Physics; each of them special and limited, as compared with Ontology. In Physics we scientifically study natural bodies with their motions, changes, and phenomena; bodies in which Form always appears implicated with Matter, and in which the principle of motion or change is immanent

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[a] Metaphys. Γ. i. p. 1003, a. 21: *ἔστιν ἐπιστήμη τις ἣ θεωρεῖ τὸ ὂν ᾗ ὂν καὶ τὰ τούτῳ ὑπάρχοντα καθ' αὑτό. αὕτη δ' ἐστὶν οὐδεμιᾷ τῶν ἐν μέρει λεγομένων ἡ αὐτή. οὐδεμία γὰρ τῶν ἄλλων ἐπισκοπεῖ καθόλου περὶ τοῦ ὄντος ᾗ ὄν, ἀλλὰ μέρος αὐτοῦ τι ἀποτεμόμεναι*, &c.

[b] Metaphys. Λ. vii. p. 1073, a. with Bonitz's Comment. pp. 504-505. Physica, I. ix. p. 192, a. 34: *περὶ δὲ τῆς κατὰ τὸ εἶδος ἀρχῆς, πότερον μία ἢ πολλαὶ καὶ τίς ἢ τίνες εἰσί, δι' ἀκριβείας τῆς πρώτης φιλοσοφίας ἔργον ἐστὶ διορίσαι, ὥστ' εἰς ἐκεῖνον τὸν καιρὸν ἀποκείσθω.* Compare Physic. I. viii. p. 191, b. 29, and Weisse, Aristoteles Physik, p. 285.

About the Metaphysica, as carrying out and completing the exposition of the Analytica Posteriora, see Metaphys. Z. xii. p. 1037, b. 8: *νῦν δὲ λέγωμεν πρῶτον, ἐφ' ὅσον ἐν τοῖς Ἀναλυτικοῖς περὶ ὁρισμοῦ μὴ εἴρηται* (Analyt. Post. II. vi. p. 92, a. 32; see note [b], p. 243).

[c] Metaphys. E. i. p. 1025, b. 25.

[d] Ibid. b. 22.

and indwelling (*i.e.*, dependent only on the universal *Prima Moventia*, and not impressed from without by a special agency, as in works of human art). In Mathematics, we study immoveable and unchangeable numbers and magnitudes, apart from the bodies to which they belong; not that they can ever be really separated from such bodies, but we intellectually abstract them, or consider them apart.[a]

Such is Aristotle's tripartite distribution of Theoretical or Contemplative Science. In introducing us to the study of First Philosophy, he begins by clearing up the meaning of the term *Ens*. It is a term of many distinct significations; being neither univocal, nor altogether equivocal, but something intermediate between the two, or multivocal. It is not a generic whole, distributed exhaustively among correlative species marked off by an assignable difference:[b] it is an analogical whole, including several genera distinct from each other at the beginning, though all of them branches derivative from one and the same root; all of them connected by some sort of analogy or common relation to that one root, yet not necessarily connected with each other by any direct or special tie.

Of these various significations, he enumerates, as we have already seen, four:—(1) *Ens* which is merely concomitant with, dependent upon, or related to, another *Ens* as terminus; (2) *Ens* in the sense of the True, opposed to *Non-Ens* in the sense of the False; (3) *Ens* according to each of the Ten Categories; (4) *Ens* potentially, as contrasted with *Ens* actually. But among these four heads, the two last only are matters upon which science is attainable, in the opinion of Aristotle. To these two, accordingly, he confides Ontology or First Philosophy. They are the only two that have an objective, self-standing, independent, nature.

That which falls under the first head (*Ens per Accidens*) is essentially indeterminate; and its causes, being alike indeterminate, are out of the reach of science. So also is that which falls under the second head—*Ens tanquam verum*, contrasted with *Non-Ens tanquam falsum*. This has no independent standing, but results from an internal act of the judging or believing mind, combining two elements, or disjoining two elements, in a way conformable to, or non-conformable to, real fact. The true

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[a] Metaphys. E. i. p. 1026; K. vii. p. 1064, a. 28-b. 14; M. iii. pp. 1077-1078; Bonitz, Commentar. p. 284.

[b] Metaphys. Γ. ii. p. 1003, a. 33-p. 1004, a. 5: *τὸ δ' ὂν λέγεται μὲν πολλαχῶς, ἀλλὰ πρὸς ἓν καὶ μίαν τινὰ φύσιν, καὶ οὐχ ὁμωνύμως—ὑπάρχει γὰρ εὐθὺς γένη ἔχοντα τὸ ὂν καὶ τὸ ἕν.*

Compare K. iii. p. 1060, b. 32. See also above, ch. iii. p. 60, of the present work.

combination or disjunction is a variety of *Ens;* the false combination or disjunction is a variety of *Non-Ens.* This mental act varies both in different individuals, and at different times with the same individual, according to a multitude of causes often unassignable. Accordingly, it does not fall under Ontological Science, nor can we discover any causes or principles determining it.[a] When Aristotle says that the two first heads are out of the reach of science, or not proper subjects of science, he means that their first *principia,* causes, or deepest foundations, cannot be discovered and assigned; for it is in determining these *principia* and causes that true scientific cognition consists.[b]

There remain, as matter proper for the investigation of First Philosophy, the two last-mentioned heads of *Ens;* viz., *Ens* according to the Ten Categories, and *Ens* potential and actual. But, along with these, Aristotle includes another matter also; viz., the critical examination of the Axioms and highest generalities of syllogistic proof or Demonstration. He announces as the first principle of these Axioms—as the highest and firmest of all Principles—the Maxim of Contradiction: [c] The same predicate

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[a] Aristot. Met. E. iv. p. 1027, b. 17; Θ. x. p. 1051, b. 2; p. 1052, a. 17-30; K. viii. p. 1065, a. 21.

There remains much obscurity about this meaning of *Ens* (*Ens* ὡς ἀληθές), even after the Scholia of Alexander (p. 701, a. 10, Sch. Brand.), and the instructive comments of Bonitz, Schwegler, and Brentano (Ueber die Bedeutung des Seienden nach Aristoteles, ch. iii. pp. 21-39).

The foundation of this meaning of *Ens* lies in the legitimate *Antiphasis,* and the proper division thereof (τὸ δὲ σύνολον περὶ μερισμὸν ἀντιφάσεως, p. 1027, b. 20). It is a first principle (p. 1005, b. 30) that, if one member of the *Antiphasis* must be affirmed as true, the other must be denied as false. If we fix upon the right combination to affirm, we say *the thing that is:* if we fix upon the wrong combination and affirm it, we say *the thing that is not* (p. 1012, b. 10). "Falsehood and Truth (Aristotle says, E. iv. p. 1027, b. 25) are not in things but in our mental combination; and as regards simple (uncombined) matters and essences, they are not even in our mental combination:" οὐ γάρ ἐστι τὸ ψεῦδος καὶ τὸ ἀληθὲς ἐν τοῖς πράγμασιν, οἷον τὸ μὲν ἀγαθὸν ἀληθές, τὸ δὲ κακὸν εὐθὺς ψεῦδος, ἀλλ' ἐν διανοίᾳ· περὶ δὲ τὰ ἁπλᾶ καὶ τὰ τί ἐστιν οὐδ' ἐν τῇ διανοίᾳ. Compare Bonitz (ad Ar. Metaph. Z. iv. p. 1030, a.), p. 310, Comm.

In regard to *cogitabilia*—simple, indivisible, uncompounded—there is no combination or disjunction; therefore, strictly speaking, neither truth nor falsehood (Aristot. De Animâ, III. vi. p. 430, a. 26; also Categor. x. p. 13, b. 10). The intellect either apprehends these simple elements, or it does not apprehend them; there is no διάνοια concerned. Not to apprehend them is ignorance, ἄγνοια, which sometimes loosely passes under the title of ψεῦδος (Schwegler, Comm. Pt. II., p. 32).

[b] Metaphys. E. i. p. 1025, b. 3: αἱ ἀρχαὶ καὶ τὰ αἴτια ζητεῖται τῶν ὄντων, δῆλον δ' ὅτι ᾗ ὄντα.—ὅλως δὲ πᾶσα ἐπιστήμη διανοητικὴ ἢ μετέχουσά τι διανοίας περὶ αἰτίας καὶ ἀρχάς ἐστιν ἢ ἀκριβεστέρας ἢ ἁπλουστέρας.

Compare Metaph. K. vii. p. 1063, b. 36; p. 1065, a. 8-26. Analyt. Post. I. ii. p. 71, b. 9.

[c] Metaph. Γ. iii. p. 1005, b. 7, 17, 22, 34: αὕτη δὴ πασῶν ἐστὶ βεβαιοτάτη τῶν ἀρχῶν—φύσει γὰρ ἀρχὴ καὶ τῶν ἄλλων ἀξιωμάτων αὕτη πάντων.—p. 1011, b. 13: βεβαιοτάτη δόξα πασῶν τὸ μὴ εἶναι ἀληθεῖς ἅμα τὰς ἀντικειμένας φάσεις—(He here applies the term δόξα to designate this fundamental maxim. This deserves notice, because of the antithesis, common with him elsewhere, between δόξα and ἐπιστήμη).

cannot both belong and not belong to the same subject, at the same time and in the same sense; or, You cannot both truly affirm, and truly deny, the same predicate respecting the same subject; or, The same proposition cannot be at once true and false. This Axiom is by nature the beginning or source of all the other Axioms. It stands first in the order of knowledge; and it neither rests upon nor involves any hypothesis.[a]

The Syllogism is defined by Aristotle as consisting of premisses and a conclusion: if the two propositions called premisses be granted as true, a third as conclusion must for that reason be granted as true also.[b] The truth of the conclusion is affirmed conditionally on the truth of the premisses; and the rules of Syllogism set out those combinations of propositions in which such affirmation may be made legitimately. The rules of the Syllogism being thus the rules for such conditional affirmation, the Principle or Axiom thereof enunciates in the most general terms what is implied in all those rules, as essential to their validity. And, since the syllogistic or deductive process is applicable without exception to every variety of the *Scibile*, Aristotle considers the Axioms or Principles thereof to come under the investigation of Ontology or First Philosophy. Thus it is, that he introduces us to the Maxim of Contradiction, and its supplement or correlative, the Maxim of the Excluded Middle.

His vindication of these Axioms is very illustrative of the philosophy of his day. It cannot be too often impressed that he was the first either to formulate the precepts, or to ascend to the theory, of deductive reasoning; that he was the first to mark by appropriate terms the most important logical distinctions and characteristic attributes of propositions; that before his time, there was abundance of acute dialectic, but no attempt to set forth any critical scheme whereby the conclusions of such dialectic might be tested. Anterior to Sokrates, the cast of Grecian philosophy had been altogether either theological, or poetical, or physical, or at least some fusion of these three varieties into one. Sokrates was the first who broke ground for Logic—for testing the difference between good and bad ratiocination. He did this by enquiry as to the definition of general terms,[c] and by dialectical exposure of the ignorance generally prevalent among those who familiarly used them. Plato in his

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[a] Metaph. Γ. iii. p. 1005, b. 13-14: *γνωριμωτάτην—ἀνυπόθετον*.

[b] Analyt. Prior. I. i. p. 24, b. 18-20, et alib.

[c] Aristot. Metaph. A. vi. p. 987, b. 1: *Σωκράτους δὲ περὶ μὲν τὰ ἠθικὰ πραγματευομένου, περὶ δὲ τῆς ὅλης φύσεως οὐθέν, ἐν μέντοι τούτοις τὸ καθόλου ζητοῦντος, καὶ περὶ ὁρισμῶν ἐπιστήσαντος πρώτου τὴν διάνοιαν.*

Sokratic dialogues followed in the same negative track; opening up many instructive points of view respecting the erroneous tendencies by which reasoners were misled, but not attempting any positive systematic analysis, nor propounding any intelligible scheme of his own for correction or avoidance of the like. If Sokrates and Plato, both of them active in exposing ratiocinative error and confusion, stopped short of any wide logical theory, still less were the physical philosophers likely to supply that deficiency. Aristotle tells us that several of them controverted the Maxim of Contradiction.[a] Herakleitus and his followers maintained the negative of it, distinctly and emphatically;[b] while the disciples of Parmenides, though less pronounced in their negative, could not have admitted it as universally true. Even Plato must be reckoned among those who, probably without having clearly stated to himself the Maxim in its universal terms, declared doctrines quite incompatible with it: the Platonic Parmenides affords a conspicuous example of contradictory conclusions deduced by elaborate reasoning and declared to be both of them firmly established.[c] Moreover, in the Sophistes,[d] Plato explains the negative proposition as expressing what is different from that which is denied, but nothing beyond; an explanation which, if admitted, would set aside the Maxim of Contradiction as invalid.

While Aristotle mentions these various dissentients, and especially Herakleitus, he seems to imagine that they were not really in earnest[e] in their dissent. Yet he nevertheless goes at length into the case against them, as well as against others, who agreed with him in affirming the Maxim, but who undertook also to demonstrate it. Any such demonstration Aristotle declares to be impossible. The Maxim is assumed in all demonstrations; unless you grant it, no demonstration is valid; but it cannot be itself demonstrated. He had already laid down in the Analytica that the premisses for demonstration could not be carried back indefinitely, and that the attempt so to carry them back was unphilosophical.[f] There must be some primary, undemonstrable

[a] Aristot. Metaph. Γ. iv. p. 1005, b. 35: *εἰσὶ δὲ τινες, οἵ, καθάπερ εἴπομεν, αὐτοί τε ἐνδέχεσθαί φασι τὸ αὐτὸ εἶναι καὶ μὴ εἶναι, καὶ ὑπολαμβάνειν οὕτως. χρῶνται δὲ τῷ λόγῳ τούτῳ πολλοὶ καὶ τῶν περὶ φύσεως.*

[b] Ibid. iii. p. 1005, b. 25; v. p. 1010, a. 13; vi. p. 1011, a. 24.

[c] Plato, Republic. v. p. 479, A.; vii. p. 538, E. Compare also the conclusion of the Platonic Parmenides, and the elaborate dialectic or antinomies by which the contradictions involved in it are proved.

[d] Plato, Sophistes, p. 257, B.

[e] Aristot. Metaph. Γ. iii. p. 1005, b. 26; K. v. p. 1062, a. 32. Here Aristotle intimates that Herakleitus may have asserted what he did not believe; though we find him in another place citing Herakleitus as an example of those who adhered as obstinately to their opinions as other persons adhered to demonstrated truth (Ethic. Nik. VII. v. p. 1146, b. 30.).

[f] Aristot. Metaph. Γ. iv. p. 1006, a. 5:

truths; and the Maxim of Contradiction he ranks among the first. Still, though in attempting any formal demonstration of the Maxim you cannot avoid assuming the Maxim itself and thus falling into *Petitio Principii*, Aristotle contends that you can demonstrate it in the way of refutation,[a] relatively to a given opponent, provided such opponent will not content himself with simply denying it, but will besides advance some affirmative thesis of his own, as a truth in which he believes; or provided he will even grant the fixed meaning of words, defining them in a manner significant alike to himself and to others,—each word to have either one fixed meaning, or a limited number of different meanings, clear and well defined.[b] It is impossible for two persons to converse, unless each understands the other. A word which conveys to the mind not one meaning, but a multitude of unconnected meanings, is for all useful purposes unmeaning.[c] If, therefore, the opponent once binds himself to an affirmative definition of any word, this definition may be truly predicated of the *definitum* as subject; while he must be considered as interdicting himself from predicating of the same subject the negative of that definition. But when you ask for the definition, your opponent must answer the question directly and *bonâ fide*. He must not enlarge his definition so as to include both the affirmative and negative of the same proposition; nor must he tack on to the real essence (declared in the definition) a multitude of unessential attributes. If he answers in this confused and perplexing manner, he must be treated as not answering at all, and as rendering philosophical discussion impossible.[d] Such a mode of speaking goes to disallow any ultimate essence or determinate subject, and shuts out all predication; for there cannot be an infinite regress of predicates upon predicates, and accidents upon accidents, without arriving at an ultimate substratum—Subject or Essence.[e] If, wherever you can truly affirm a predicate of

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ἀξιοῦσι δὴ καὶ τοῦτο ἀποδεικνύναι τινὲς δὶ ἀπαιδευσίαν· ἔστι γὰρ ἀπαιδευσία τὸ μὴ γιγνώσκειν τίνων δεῖ ζητεῖν ἀπόδειξιν καὶ τίνων οὐ δεῖ.

[a] Aristot. Metaph. Γ. iv. p. 1006, a. 11: ἔστι δ' ἀποδεῖξαι ἐλεγκτικῶς καὶ περὶ τούτου ὅτι ἀδύνατον, ἂν μόνον τι λέγῃ ὁ ἀμφισβητῶν.—K. v. p. 1062, a. 2: καὶ περὶ τῶν τοιούτων ἁπλῶς μὲν οὐκ ἔστιν ἀπόδειξις, πρὸς τόνδε δ' ἔστιν.—p. 1062, a 30.

[b] Ibid. Γ. iv. p. 1006, a. 18-34. διαφέρει δ' οὐθὲν οὐδ' εἰ πλείω τις φαίη σημαίνειν, μόνον δὲ ὡρισμένα.—K. v. p. 1062, a. 12.

[c] Ibid. Γ. iv. p. 1006, b. 7: τὸ γὰρ μὴ ἓν τι σημαίνειν οὐθὲν σημαίνειν ἐστίν, μὴ σημαινόντων δὲ τῶν ὀνομάτων ἀνῄρηται τὸ διαλέγεσθαι πρὸς ἀλλήλους, κατὰ δὲ τὴν ἀλήθειαν καὶ πρὸς αὑτόν· οὐθὲν γὰρ ἐνδέχεται νοεῖν μὴ νοοῦντα ἕν.—K. v. p. 1062, a. 20.

[d] Ibid. Γ. iv. p. 1006, b. 30-b. 1007, a. 20. συμβαίνει τὸ λεχθέν, ἂν ἀποκρίνηται τὸ ἐρωτώμενον. ἐὰν δὲ προστιθῇ ἐρωτῶντος ἁπλῶς καὶ τὰς ἀποφάσεις, οὐκ ἀποκρίνεται τὸ ἐρωτώμενον.—ἐὰν δὲ τοῦτο ποιῇ, οὐ διαλέγεται.

[e] Ibid. p. 1007, a. 20-b. 19: ὅλως δ' ἀναιροῦσιν οἱ τοῦτο λέγοντες οὐσίαν καὶ τὸ τί ἦν εἶναι.—εἰ δὲ πάντα κατὰ συμβεβηκὸς λέγεται, οὐθὲν ἔσται πρῶτον τὸ καθ' οὗ, εἰ ἀεὶ τὸ συμβεβηκὸς καθ' ὑποκειμένου τινὸς σημαίνει τὴν κατηγορίαν· ἀνάγκη ἄρα εἰς ἄπειρον ἰέναι· ἀλλ' ἀδύνατον.

any subject, you can also truly deny the same predicate of the same subject, it is manifest that all subjects are one: there is nothing to discriminate man, horse, ship, wall, &c., from each other; every one speaks truth, and every one at the same time speaks falsehood; a man believes and disbelieves the same thing at the same time; or he neither believes nor disbelieves, and then his mind is blank, like a vegetable.[a]

The man who professes this doctrine, however (continues Aristotle[b]), shows plainly by his conduct that his mind is not thus blank; that in respect of the contradictory alternative, he does not believe either both sides or neither side, but believes one and disbelieves the other. When he feels hungry, and seeks what he knows to be palatable and wholesome, he avoids what he knows to be nasty and poisonous. He knows what is to be found in the market-place, and goes there to get it; he keeps clear of falling into a well or walking into the sea; he does not mistake a horse for a man. He may often find himself mistaken; but he shows by his conduct that he believes certain subjects to possess certain definite attributes, and not to possess others. Though we do not reach infallible truth, we obtain an approach to it, sometimes nearer, sometimes more remote; and we thus escape the extreme doctrine which forbids all definite affirmation.[c]

It is in this manner that Aristotle, vindicating the Maxims of Contradiction and of Excluded Middle as the highest *principia* of syllogistic reasoning, disposes of the two contemporaneous dogmas that were most directly incompatible with these Maxims: —(1) The dogma of Herakleitus, who denied all duration or permanence of subject, recognizing nothing but perpetual process, flux, or change, each successive moment of which involved destruction and generation implicated with each other: *Is* and *is not* are both alike and conjointly true, while neither is true separately, to the exclusion of the other;[d] (2) The dogma of

[a] Aristot. Met. Γ. iv. p. 1008, a. 18-b. 12: *εἰ δὲ ὁμοίως καὶ ὅσα ἀποφῆσαι φάναι ἀνάγκη—πάντα δ' ἂν εἴη ἕν—οὐθὲν διοίσει ἕτερον ἑτέρου—εἰ δὲ μηθὲν ὑπολαμβάνει ἀλλ' ὁμοίως οἴεται καὶ οὐκ οἴεται, τί ἂν διαφερόντως ἔχοι τῶν φυτῶν;* K. v. p. 1062, a. 28.

[b] Ibid. Γ. iv. p. 1008, b. 12-31; K. vi. p. 1063, a. 30.

[c] Ibid. Γ. iv. p. 1008, b. 36: *εἰ οὖν τὸ μᾶλλον ἐγγύτερον, εἴη γε ἄν τι ἀληθὲς οὗ ἐγγύτερον τὸ μᾶλλον ἀληθές· κἂν εἰ μή ἐστιν, ἀλλ ἤδη γέ τι ἐστὶ βεβαιότερον καὶ ἀληθινώτερον, καὶ τοῦ λόγου ἀπηλλαγμένοι ἂν εἴημεν τοῦ ἀκράτου καὶ κωλύοντός τι τῇ διανοίᾳ ὁρίσαι.*'

[d] Aristot. Met. A. vi. p. 987, a. 34; Γ. v. p. 1010, a. 12: *Κράτυλος—ὃς τὸ τελευταῖον οὐθὲν ᾤετο δεῖν λέγειν ἀλλὰ τὸν δάκτυλον ἐκίνει μόνον, καὶ Ἡρακλείτῳ ἐπετίμα εἰπόντι ὅτι δὶς τῷ αὐτῷ ποτάμῳ οὐκ ἔστιν ἐμβῆναι· αὐτὸς γὰρ ᾤετο οὐδ' ἅπαξ.* Herakleitus adopted as his one *fundamentum* Fire or Heat, as being the principle of mobility or change: *χρῶνται γὰρ ὡς κινητικὴν ἔχοντι τῷ πυρὶ τὴν φύσιν*—Metaph. A. iii. p. 984, b. 5. Ibid. K. v. p. 1062, a. 31-b. 10; K. x. p. 1067, a. 5; M. iv. p. 1078, b. 15.

Anaxagoras, who did not deny fixity or permanence of subject, but held that everything was mixed up with everything; that every subject had an infinite assemblage of contrary predicates, so that neither of them could be separately affirmed or separately denied: The truth lies in a third alternative or middle, between affirmation and denial.[a]

Having thus refuted these dogmas to his own satisfaction, Aristotle proceeds to impugn a third doctrine which he declares to be analogous to these two and to be equally in conflict with the two syllogistic *principia* which he is undertaking to vindicate. This third doctrine is the "*Homo Mensura*" of Protagoras: Man is the measure of all things—the measure of things existent as well as of things non-existent: To each individual that is true or false which he believes to be such, and for as long as he believes it. Aristotle contends that this doctrine is homogeneous with those of Herakleitus and Anaxagoras, and must stand or fall along with them; all three being alike adverse to the Maxim of Contradiction.[b] Herein he follows partially the example of Plato, who (in his Theætêtus[c]), though not formally enunciating the Maxim of Contradiction, had declared the tenets of Protagoras to be coincident with or analogous to those of Herakleitus, and had impugned both one and the other by the same line of arguments. Protagoras agreed with Herakleitus (so Plato and Aristotle tell us) in declaring both affirmative and negative (in the contradictory alternative) to be at once and alike true; for he maintained that what any person believed was true, and that what any person disbelieved was false. Accordingly, since opinions altogether opposite and contradictory are held by different persons or by the same person at different times, both the affirmative and the negative of every *Antiphasis* must be held as true alike;[d] in other words, all affirmations and all negations were at once true and false. Such co-existence or implication of contradictions is the main doctrine of Herakleitus.

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[a] Aristot. Met. K. vi. p. 1063, b. 25; A. viii. p. 989, a. 31-b. 16. ὅτε γὰρ οὐθὲν ἦν ἀποκεκριμένον, δῆλον ὡς οὐθὲν ἦν ἀληθὲς εἰπεῖν κατὰ τῆς οὐσίας ἐκείνης, λέγω δ' οἷον ὅτι οὔτε λευκὸν οὔτε μέλαν ἢ φαιὸν ἢ ἄλλο χρῶμα ἀλλ' ἄχρων ἦν ἐξ ἀνάγκης· ὁμοίως δὲ καὶ ἄχυμον τῷ αὐτῷ λόγῳ τούτῳ, οὐδὲ ἄλλο τῶν ὁμοίων οὐθέν· οὔτε γὰρ ποιόν τι οἷόν τε αὐτὸ εἶναι οὔτε ποσὸν οὔτε τί.—Γ. iv. b. 1007, b. 25: καὶ γίγνεται δὴ τὸ τοῦ Ἀναξαγόρου, ὁμοῦ πάντα χρήματα· ὥστε μηθὲν ἀληθῶς ὑπάρχειν.—Γ. viii. p. 1012, a. 24: ἔοικε δ' ὁ μὲν Ἡρακλείτου λόγος, λέλων πάντα εἶναι καὶ μὴ εἶναι, ἅπαντα ἀληθῆ ποιεῖν, ὁ δ' Ἀναξαγόρου εἶναί τι μεταξὺ τῆς ἀντιφάσεως, ὥστε πάντα ψευδῆ· ὅταν γὰρ μιχθῇ, οὔτ' ἀγαθὸν οὔτ' οὐκ ἀγαθὸν τὸ μῖγμα, ὥστ' οὐθὲν εἰπεῖν ἀληθές.

[b] Aristot. Met. Γ. v. p. 1009, a. 6: ἔστι δ' ἀπὸ τῆς αὐτῆς δόξης καὶ ὁ Πρωταγόρου λόγος, καὶ ἀνάγκη ὁμοίως ἄμφω αὐτοὺς ἢ εἶναι ἢ μὴ εἶναι.

[c] Aristotle refers here to Plato by name, Metaphys. Γ. v. p. 1010, b. 12.

[d] Ibid. p. 1009, a. 8-20. ἀνάγκη πάντα ἅμα ἀληθῆ καὶ ψευδῆ εἶναι.—p. 1011, a. 30.

I have already in another work,[a] while analysing the Platonic dialogues Theætêtus and Kratylus, criticized at some length the doctrine here laid down by Plato and Aristotle. I have endeavoured to show that the capital tenet of Protagoras is essentially distinct from the other tenets with which these two philosophers would identify it: distinct both from the dogma of Herakleitus, That everything is in unceasing flux and process, each particular moment thereof being an implication of contradictions both alike true; and distinct also from the other dogma held by others, That all cognition is sensible perception. The Protagorean tenet "*Homo Mensura*" is something essentially distinct from either of these two; though possibly Protagoras himself may have held the second of the two, besides his own. His tenet is nothing more than a clear and general declaration of the principle of universal Relativity. True belief and affirmation have no meaning except in relation to some believer, real or supposed; true disbelief and negation have no meaning except in relation to some disbeliever, real or supposed. When a man affirms any proposition as true, he affirms only what he (perhaps with some other persons also) believes to be true, while others may perhaps disbelieve it as falsehood. Object and Subject are inseparably implicated: we may separate them by abstraction, and reason about each apart from the other; but, as reality, they exist only locked up one with the other.

That such is and always has been the state of the fact, in regard to truth and falsehood, belief and disbelief, is matter of notoriety: Protagoras not only accepts it as a fact, but formulates it as a theory. Instead of declaring that what he (or the oracle which he consults and follows) believes to be true, is

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[a] 'Plato and the Other Companions of Sokrates,' Vol. II. c. xxvi. pp. 325-363: "The Protagorean doctrine—Man is the measure of all things—is simply the presentation in complete view of a common fact; uncovering an aspect of it which the received phraseology hides. Truth and Falsehood have reference to some believing Subject; and the words have no meaning except in that relation. Protagoras brings to view the subjective side of the same complex fact, of which Truth and Falsehood denote the objective side. He refuses to admit the object absolute—the pretended *thing in itself*—Truth without a believer. His doctrine maintains the indefeasible and necessary involution of the percipient mind in every perception; of the concipient mind in every conception; of the cognizant mind in every cognition. Farther Protagoras acknowledges many distinct believing or knowing Subjects; and affirms that every Object known must be relative to (or in his language *measured by*) the knowing Subject: that every *cognitum* must have its *cognoscens*, and every *cognoscibile* its *cognitionis capax*; that the words have no meaning unless this be supposed; that these two names designate two opposite poles or aspects of the indivisible fact of cognition—actual or potential—not two factors, which are in themselves separate or separable, and which come together to make a compound product. A man cannot in any case get clear of or discard his own mind as Subject. Self is necessarily omnipresent, concerned in every moment of consciousness, &c." Compare also c. xxiv. p. 261.

absolute truth, while that which others believe, is truth relatively to them,—he lowers his own pretensions to a level with theirs. He professes to be a measure of truth only for himself, and for such as may be satisfied with the reasons that satisfy him. Aristotle complains that this theory discourages the search for truth as hopeless, not less than the chase after flying birds.[a] But, however serious such discouragement may be, we do not escape the real difficulty of the search by setting up an abstract idol and calling it Absolute Truth, without either relativity or referee; while, if we enter, as sincere and *bonâ fide* enquirers, on the search for reasoned truth or philosophy, we shall find ourselves not departing from the Protagorean canon, but involuntarily conforming to it. Aristotle, after having declared that the Maxim of Contradiction was true beyond the possibility of deception,[b] but yet that there were several eminent philosophers who disallowed it, is forced to produce the best reasons in his power to remove their doubts and bring them round to his opinion. His reasons must be such as to satisfy not his own mind only, but the minds of opponents and indifferent auditors as referees. This is an appeal to other men, as judges each for himself and in his own case: it is a tacit recognition of the autonomy of each individual enquirer as a measure of truth to himself. In other words, it is a recognition of the Protagorean canon.

We know little about the opinions of Protagoras; but there was nothing in this canon necessarily at variance either with the Maxim of Contradiction or with that of Excluded Middle. Both Aristotle and Plato would have us believe that Protagoras was bound by his canon to declare every opinion to be alike false and true, because every opinion was believed by some and disbelieved by others.[c] But herein they misstate his theory. He did not declare any thing to be *absolutely* true, or to be *absolutely* false. Truth and Falsehood were considered by him as always relative to some referee, and he recognized no universal or infallible referee. In his theory the necessity of *some* referee was distinctly enunciated, instead of being put out of sight under an ellipsis, as in the received theories and practice. And this is exactly what Plato and Aristotle omit, when they refute him. He proclaimed that each man was a measure for himself alone,

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[a] Aristot. Metaph. Γ. v. p. 1009, b. 38.

[b] Ibid. Γ. iii. p. 1005, b. 11: βεβαιοτάτη δ' ἀρχὴ πασῶν, περὶ ἣν διαψευσθῆναι ἀδύνατον.

[c] Plato, Theætêt. pp. 171-179. Aristot. Met. Γ. iv. p. 1007, b. 21: εἰ κατὰ παντός τι ἢ καταφῆσαι ἢ ἀποφῆσαι ἐνδέχεται, καθάπερ ἀνάγκη τοῖς τὸν Πρωταγόρου λέγουσι λόγον. Compare v. p. 1009, a. 6; viii. p. 1012, b. 15.

and that every opinion was true *to the believer*, false *to the disbeliever;* while they criticize him as if he had said—Every opinion is alike true and false; thus leaving out the very qualification which forms the characteristic feature of his theory. They commit that fallacy which Plato shows up in the Euthydêmus, and which Aristotle [a] numbers in his list of *Fallaciæ Extra Dictionem*, imputing it as a vice to the Sophists: they slide *à dicto secundum quid ad dictum simpliciter.* And it is remarkable that Aristotle, in one portion of his argument against "*Homo Mensura*," expressly admonishes the Protagoreans that they must take care to adhere constantly to this qualified mode of enunciation; [b] that they must not talk of apparent truth generally, but of truth as it appears *to themselves* or *to some other persons*, now or at a different time. Protagoras hardly needed such an admonition to keep to what is the key-note and characteristic peculiarity of his own theory; since it is only by suppressing this peculiarity that his opponents make the theory seem absurd. He would by no means have disclaimed that consequence of his theory, which Aristotle urges against it as an irrefragable objection; viz., that it makes every thing relative, and recognizes nothing as absolute. This is perfectly true, and constitutes its merit in the eyes of its supporters.

Another argument of Aristotle [c] against the Protagorean "*Homo Mensura*"—That it implies in every affirming Subject an equal authority and equal title to credence, as compared with every other affirming Subject—I have already endeavoured to combat in my review of the Platonic Theætêtus, where the same argument appears fully developed. The antithesis between Plato and Aristotle on one side, and Protagoras on the other, is indeed simply that between Absolute and Relative. The Protagorean doctrine is quite distinct from the other doctrines with which they jumble it together—from those of Herakleitus and Anaxagoras, and from the theory that Knowledge is sensible perception. The real opponents of the Maxim of Contradiction were Herakleitus, Anaxagoras, Parmenides, and Plato himself as represented in some of his dialogues, especially the Parmenides, Timæus, Republic, Sophistes. Each of these philoso-

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[a] Aristot. Soph. El. p. 167, a. 3; Rhetoric. II. xxiv. p. 1402, a. 2-15. ὥσπερ καὶ ἐπὶ τῶν ἐριστικῶν τὸ κατά τι καὶ πρός τι καὶ πῇ οὐ προστιθέμενα ποιεῖ τὴν συκοφαντίαν.

[b] Aristot. Metaph. Γ. vi. p. 1011, a. 21: διὸ καὶ φυλακτέον τοῖς τὴν βίαν ἐν τῷ λόγῳ ζητοῦσιν, ἅμα δὲ καὶ ὑπέχειν λόγον ἀξιοῦσιν, ὅτι οὐ τὸ φαινόμενον ἔστιν, ἀλλὰ τὸ φαινόμενον ᾧ φαίνεται καὶ ὅτε φαίνεται καὶ ᾗ καὶ ὥς.—b. 1: ἀλλ' ἴσως διὰ τοῦτ' ἀνάγκη λέγειν τοῖς μὴ δι' ἀπορίαν ἀλλὰ λόγου χάριν λέγουσιν, ὅτι οὐκ ἔστιν ἀληθὲς τοῦτο, ἀλλὰ τούτῳ ἀληθές.

[c] Ibid. v. p. 1010, b. 11.

phers adopted a First Philosophy different from the others: but each also adopted one completely different from that of Aristotle, and not reconcileable with his logical canons. None of them admitted determinate and definable attributes belonging to determinate particular subjects, each with a certain measure of durability.

Now the common speech of mankind throughout the Hellenic world was founded on the assumption of such fixed subjects and predicates. Those who wanted information for practical guidance or security, asked for it in this form; those who desired to be understood by others, and to determine the actions of others, adopted the like mode of speech. Information was given through significant propositions, which the questioner sought to obtain, and which the answer, if cognizant, enunciated: *e.g.*, Theætêtus in sitting down [a]—to repeat the minimum or skeleton of a proposition as given by Plato, requiring both subject and predicate in proper combination, to convey the meaning. Now the logical analysis, and the syllogistic precepts of Aristotle,—as well as his rhetorical and dialectical suggestions for persuading, for refuting, or for avoiding refutation—are all based upon the practice of common speech. In conversing (he says) it is impossible to produce and exhibit the actual objects signified; the speaker must be content with enunciating, instead thereof, the name significant of each.[b] The first beginning of rhetorical diction is, to speak good Greek;[c] the rhetor and the dialectician must dwell upon words, propositions, and opinions, not peculiar to such as have received special teaching, but common to the many and employed in familiar conversation; the auditors, to whom they address themselves, are assumed to be commonplace men, of fair average intelligence, but nothing beyond.[d] Thus much of acquirement is imbibed by almost every one as he grows up, from the ordinary intercourse of society. The men of special instruction begin with it, as others

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[a] Plato, Sophistes, pp. 262-263.

[b] Aristot. Soph. El. p. 165, a. 5: *ἐπεὶ γὰρ οὐκ ἔστιν αὐτὰ τὰ πράγματα διαλέγεσθαι φέροντας, ἀλλὰ τοῖς ὀνόμασιν ἀντὶ τῶν πραγμάτων χρώμεθα συμβόλοις.*

[c] Aristot. Rhet. III. v. p. 1407, a. 19: *ἔστι δ' ἀρχὴ τῆς λέξεως τὸ Ἑλληνίζειν.*

[d] Aristot. Rhet. I. i. p. 1354, a. 1: *ἡ ῥητορική ἀντίστροφός ἐστι τῇ διαλεκτικῇ· ἀμφότεραι γὰρ περὶ τοιούτων τινῶν εἰσὶν ἃ κοινὰ τρόπον τινὰ ἁπάντων ἐστὶ γνωρίζειν καὶ οὐδεμιᾶς ἐπιστήμης ἀφωρισμένης· διὸ καὶ πάντες τρόπον τινὰ μετέχουσιν ἀμφοῖν.* —p. 1355, a. 25: *διδασκαλίας γάρ ἐστιν ὁ κατὰ τὴν ἐπιστήμην λόγος, τοῦτο δὲ ἀδύνατον, ἀλλ' ἀνάγκη διὰ τῶν κοινῶν ποιεῖσθαι τὰς πίστεις καὶ τοὺς λόγους, ὥσπερ καὶ ἐν τοῖς Τοπικοῖς ἐλέγομεν περὶ τῆς πρὸς τοὺς πολλοὺς ἐντεύξεως.*—p. 1357, a. 1: *ἔστι δὲ τὸ ἔργον αὐτῆς περί τε τοιούτων περὶ ὧν βουλευόμεθα καὶ τέχνας μὴ ἔχομεν, καὶ ἐν τοῖς τοιούτοις ἀκροαταῖς οἳ οὐ δύνανται διὰ πολλῶν συνορᾶν οὐδὲ λογίζεσθαι πόρρωθεν.*—p. 1357, a. 11: *ὁ γὰρ κρίτης ὑποκεῖται εἶναι ἁπλοῦς.* Compare Topica, I. ii. p. 101, a. 26-36; Soph. El. xi. p. 172, a. 30.

do; but they also superadd other cognitions or accomplishments derived from peculiar teachers. Universally—both in the interior of the family, amidst the unscientific multitude, and by the cultivated few—habitual speech was carried on through terms assuming fixed subjects and predicates. It was this recognized process in its two varieties of Analytic and Dialectic, which Aristotle embraced in his logical theory, and to which he also adapted his First Philosophy.

But the First Philosophy that preceded his, had not been so adapted. The Greek philosophers, who flourished before dialectical discussion had become active, during the interval between Thales and Sokrates, considered Philosophy as one whole—*rerum divinarum et humanarum scientia*—destined to render Nature or the Kosmos more or less intelligible. They took up in the gross all those vast problems, which the religious or mythological poets had embodied in divine genealogies and had ascribed to superhuman personal agencies.

Thales and his immediate successors (like their predecessors the poets) accommodated their hypotheses to intellectual impulses and aspirations of their own; with little anxiety about giving satisfaction to others,[a] still less about avoiding inconsistencies or meeting objections. Each of them fastened upon some one grand and imposing generalization (set forth often in verse) which he stretched as far as it would go by various comparisons and illustrations, but without any attention or deference to adverse facts or reasonings. Provided that his general point of view was impressive to the imagination,[b] as the old religious scheme of personal agencies was to the vulgar, he did not concern himself about the conditions of proof or disproof. The data of experience were altogether falsified (as by the Pythagoreans)[c] in order to accommodate them to the theory; or were set aside as deceptive and inexplicable from the theory (as by both Parmenides and Herakleitus).[d]

But these vague hypotheses became subjected to a new scrutiny, when the dialectical age of Zeno and Sokrates supervened.

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[a] Aristot. Met. B. iv. p. 1000, a. 9: *οἱ μὲν οὖν περὶ Ἡσίοδον καὶ πάντες ὅσοι θεόλογοι μόνον ἐφρόντισαν τοῦ πιθανοῦ τοῦ πρὸς αὑτούς, ἡμῶν δ' ὠλιγώρησαν·—καὶ γὰρ ὅνπερ οἰηθείη λέγειν ἄν τις μάλιστα ὁμολογουμένως αὑτῷ, Ἐμπεδοκλῆς, καὶ οὗτος ταὐτὸν πέπονθεν.*—Metaph. N. iv. p. 1091, b. 1-15.

[b] This is strikingly expressed by a phrase of Aristotle about the Platonic theory, Metaph. N. iii. p. 1090, a. 35: *οἱ δὲ χωριστὸν ποιοῦντες, ὅτι ἐπὶ τῶν αἰσθητῶν οὐκ ἔσται τὰ ἀξιώματα, ἀληθῆ δὲ τὰ λεγόμενα καὶ σαίνει τὴν ψυχήν, εἶναί τε ὑπολαμβάνουσι καὶ χωριστὰ εἶναι.*

[c] Metaph. N. iii. p. 1090, a. 34: *ἐοίκασι περὶ ἄλλου οὐράνου λέγειν καὶ σωμάτων ἀλλ' οὐ τῶν αἰσθητῶν.*—Metaph. A. v. p. 986, a. 5; and De Cœlo, II. xiii. p. 293, a. 25.

[d] Physic. I. ii.-iii. pp. 185-186.

Opponents of Parmenides impugned his theory of *Ens Unum Continuum Immobile*, as leading to absurdities; while his disciple Zeno replied, not by any attempt to disprove such allegations but, by showing that the counter-theory of *Entia Plura Discontinua Moventia*, or *Mutabilia*, involved consequences yet more absurd.[a] In the acute dialectical warfare, to which the old theories thus stood exposed, the means of attack much surpassed those of defence; moreover, the partisans of Herakleitus despised all coherent argumentation, confining themselves to obscure oracular aphorisms and multiplied metaphors.[b] In point of fact, no suitable language could be found, consistently with common speech or common experience, for expanding in detail either the Herakleitean[c] or the Parmenidean theory; the former suppressing all duration and recognizing nothing but events—a perpetual stream of *Fientia* or interchange of *Ens* with *Non-Ens;* the latter discarding *Non-Ens* as unmeaning, and recognizing no real events or successions, but only *Ens Unum* perpetually lasting and unchangeable. The other physical hypotheses, broached by Pythagoras, Empedokles, Anaxagoras, and Demokritus, each altogether discordant with the others, were alike imposing in their general enunciation and promise, alike insufficient when applied to common experience and detail.

But the great development of Dialectic during the Sokratic age, together with the new applications made of it by Sokrates and the unrivalled acuteness with which he wielded it, altered materially the position of these physical theories. Sokrates was not ignorant of them;[d] but he discouraged such studies, and turned attention to other topics. He passed his whole life in public and in indiscriminate conversation with every one. He deprecated astronomy and physics as unbecoming attempts to pry into the secrets of the gods; who administered the general affairs of the Kosmos according to their own pleasure, and granted only, through the medium of prophecy or oracles, such special revelations as they thought fit. In his own discussions Sokrates dwelt only on matters of familiar conversation

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[a] Plato. Parmenid. p. 128, D.

[b] Plato, Theætêt. p. 179, E: *περὶ τούτων τῶν Ἡρακλειτείων,—τὸ ἐπιμεῖναι ἐπὶ λόγῳ καὶ ἐρωτήματι καὶ ἡσυχίως ἐν μέρει ἀποκρίνασθαι καὶ ἐρέσθαι ἧττον αὐτοῖς ἔνι ἢ τὸ μηδέν·—ὥσπερ ἐκ φαρέτρας ῥηματίσκια αἰνιγματώδη ἀνασπῶντες ἀποτοξεύουσι, κἂν τούτου ζητῇς λόγον λαβεῖν, τί εἴρηκεν, ἑτέρῳ πεπλήξει καινῶς μετωνομασμένῳ, περανεῖς δὲ οὐδέποτε οὐδὲν πρὸς οὐδένα αὐτῶν.*

[c] Ibid. p. 183, B: *ἀλλά τιν' ἄλλην φωνὴν θετέον τοῖς τὸν λόγον τοῦτον λέγουσιν, ὡς νῦν γε πρὸς τὴν αὐτῶν ὑπόθεσιν οὐκ ἔχουσι ῥήματα, εἰ μὴ ἄρα τὸ οὐδ' ὅπως· μάλιστα δ' οὕτως ἂν αὐτοῖς ἁρμόττοι, ἄπειρον λεγόμενον.*

Plato applies this remark to the theory of Protagoras; but the remark belongs properly to that of Herakleitus.

[d] Xenophon, Mem. IV. vii. 5: *καίτοι οὐδὲ τούτων γε ἀνήκοος ἦν.*

and experience—social, ethical, political, &c., such as were in every one's mouth, among the daily groups of the market-place. These he declared to be the truly *human* topics[a]—the proper study of mankind—upon which it was disgraceful to be ignorant, or to form untrue and inconsistent judgments. He found, moreover, that upon these topics no one supposed himself to be ignorant, or to require teaching. Every one gave confident opinions, derived from intercourse with society, embodied in the familiar words of the language, and imbibed almost unconsciously along with the meaning of these words. Now Sokrates not only disclaimed all purpose of teaching, but made ostentatious profession of his own ignorance. His practice was to ask information from others who professed to know; and with this view, to question them about the import of vulgar words with the social convictions contained in them.[b] To the answers given he applied an acute cross-examination, which seldom failed to detect so much inconsistency and contradiction as to cover the respondent with shame, and to make him sensible that he was profoundly ignorant of matters which he had believed himself to know well. Sokrates declared, in his last speech before condemnation by the Athenian Dikasts, that such false persuasion of knowledge, combined with real ignorance, was universal among mankind; and that the exposure thereof, as the great misguiding force of human life, had been enjoined upon him as his mission by the Delphian God.[c]

The peculiarities which Aristotle ascribes to Sokrates are—that he talked upon ethical topics instead of physical, that he fastened especially on the definitions of general terms, and that his discussions were inductive, bringing forward many analogous illustrative or probative particulars to justify a true general proposition, and one or a few to set aside a false one.[d] This

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[a] Xenophon, Mem. I. i. 12-16: *καὶ πρῶτον μὲν αὐτῶν ἐσκόπει πότερά ποτε νομίσαντες ἱκανῶς ἤδη τἀνθρώπεια εἰδέναι ἔρχονται ἐπὶ τὸ περὶ τῶν τοιούτων φροντίζειν, ἢ τὰ μὲν ἀνθρώπεια παρέντες, τὰ δὲ δαιμόνια σκοποῦντες, ἡγοῦνται τὰ προσήκοντα πράττέιν.—αὐτὸς δὲ περὶ τῶν ἀνθρωπείων ἀεὶ διελέγετο, σκοπῶν τί εὐσεβές, τί ἀσεβές, τί καλόν, τί αἰσχρόν, τί δίκαιον, τί ἄδικον, τί σωφροσύνη, τί μανία, τί πόλις, τί πολιτικός, τί ἀρχὴ ἀνθρώπων, τί ἀρχικὸς ἀνθρώπων*, &c. Compare IV. vii. 2-9.

[b] Xenoph. Memor. I. ii. 26-46; III. vi. 2-15; IV. ii.; IV. vi. 1: *σκοπῶν σὺν τοῖς συνοῦσι τί ἕκαστον εἴη τῶν ὄντων οὐδέποτ' ἔληγε.*—IV. iv. 9: *ἀρκεῖ γὰρ ὅτι τῶν ἄλλων καταγελᾷς, ἐρωτῶν μὲν καὶ ἐλέγχων πάντας, αὐτὸς δ' οὐδενὶ θέλων ὑπέχειν λόγον οὐδὲ γνώμην ἀποφαίνεσθαι περὶ οὐδενός.*—Plato, Republic I. pp. 336-337; Theætêt. p. 150 C.

[c] Plato, Apol. Sokrat. pp. 22, 28, 33: *ἐμοὶ δὲ τοῦτο, ὡς ἐγώ φημι, προστέτακται ὑπὸ τοῦ θεοῦ πράττειν καὶ ἐκ μαντειῶν καὶ ἐξ ἐνυπνίων καὶ παντὶ τρόπῳ, ᾧπέρ τίς ποτε καὶ ἄλλη θεία μοῖρα ἀνθρώπῳ καὶ ὁτιοῦν προσέταξε πράττειν.*—Plato, Sophist. pp. 230-231; Menon, pp. 80, A., 84, B.

Compare the analysis of the Platonic Apology in my work, 'Plato and the Other Companions of Sokrates,' Vol. I. c. vii.

[d] Aristot. Metaph. M. iv. p. 1078 b. 28: *δύο γάρ ἐστιν ἅ τις ἂν ἀποδοίη Σωκρά-*

Sokratic practice is copiously illustrated both by Plato in many of his dialogues, and by Xenophon throughout all the Memorabilia.[a] In Plato, however, Sokrates is often introduced as spokesman of doctrines not his own; while in Xenophon we have before us the real man as he talked in the market-place, and apparently little besides. Xenophon very emphatically exhibits to us a point which in Plato's Dialogues of Search is less conspicuously marked, though still apparent: viz., the power possessed by Sokrates of accommodating himself to the ordinary mind in all its varieties—his habit of dwelling on the homely and familiar topics of the citizen's daily life—his constant appeal to small and even vulgar details, as the way of testing large and imposing generalities.[b] Sokrates possessed to a surprising degree the art of selecting arguments really persuasive to ordinary non-theorizing men; so as often to carry their assent along with him, and still oftener to shake their previous beliefs, if unwarranted, or even if adopted by mere passive receptivity without preliminary reflection and comparison.

Without departing from Aristotle's description, therefore, we may conceive the change operated by Sokrates in philosophical discussion under a new point of view. In exchanging Physics for Ethics, it vulgarized both the topics and the talk of philosophy. Physical philosophy as it stood in the age of Sokrates (before Aristotle had broached his peculiar definition of Nature) was merely an obscure, semi-poetical, hypothetical *Philosophia Prima*,[c] or rather *Philosophia Prima* and *Philosophia Secunda* blended in one. This is true of all its varieties,—of the Ionic philosophers as well as of Pythagoras, Parmenides, Herakleitus, Anaxagoras, Empedokles, and even Demokritus. Such philosophy, dimly enunciated and only half intelligible,[d] not merely did not tend to explain or clear up phenomenal experiences, but often added new difficulties of its own. It presented itself sometimes even as discrediting, overriding, and contradicting

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τει δικαίως, τούς τ' ἐπακτικοὺς λόγους καὶ τὸ ὁρίζεσθαι καθόλου· ταῦτα γάρ ἐστιν ἄμφω περὶ ἀρχὴν ἐπιστήμης.—ib. A. vi. p. 987, b. 1: Σωκράτους δὲ περὶ μὲν τὰ ἠθικὰ πραγματευομένου, περὶ δὲ τῆς ὅλης φύσεως οὐθέν, ἐν μέντοι τούτοις τὸ καθόλου ζητοῦντος καὶ περὶ ὁρισμῶν ἐπιστήσαντος πρώτου τὴν διάνοιαν.

[a] No portion of the Memorabilia illustrates this point better than the dialogue with Euthydêmus, IV. vi.

[b] Xenophon, Memor. IV. vi. 15: ὁπότε δὲ αὐτός τι τῷ λόγῳ διεξίοι, διὰ τῶν μάλιστα ὁμολογουμένων ἐπορεύετο, νομίζων ταύτην τὴν ἀσφάλειαν εἶναι λόγου· τοιγαροῦν πολὺ μάλιστα ὧν ἐγὼ οἶδα, ὅτε λέγοι, τοὺς ἀκούοντας ὁμολογοῦντας παρεῖχεν· ἔφη δὲ καὶ Ὅμηρον τῷ Ὀδυσσεῖ ἀναθεῖναι τὸ ἀσφαλῆ ῥήτορα εἶναι, ὡς ἱκανὸν αὐτὸν ὄντα διὰ τῶν δοκούντων τοῖς ἀνθρώποις ἄγειν τοὺς λόγους.

Compare ib. I. ii. 38; IV. iv. 6; also Plato, Theætêtus, p. 147, A, B; Republic I. p. 338, C.

[c] Aristot. Metaph. Γ. iii. p. 1005, a. 31.

[d] Ibid. A. x. p. 993, a. 15: ψελλιζομένῃ γὰρ ἔοικεν ἡ πρώτη φιλοσοφία περὶ πάντων, ἅτε νέα τε κατ' ἀρχὰς οὖσα καὶ τὸ πρῶτον.

experience; but never as opening any deductive road from the Universal down to its particulars.[a] Such theories, though in circulation among a few disciples and opponents, were foreign and unsuitable to the talk of ordinary men. To pass from these cloudy mysteries to social topics and terms which were in every one's mouth, was the important revolution in philosophy introduced in the age of Sokrates, and mainly by him.

The drift of the Sokratic procedure was to bring men into the habit of defining those universal terms which they had hitherto used undefined, the definitions being verified by induction of particulars as the ultimate authority. It was a procedure built upon common speech, but improving on common speech; the talk of every man being in propositions, each including a subject and predicate, but neither subject nor predicate being ever defined. It was the mission of Sokrates to make men painfully sensible of that deficiency, as well as to enforce upon them the inductive evidence by which alone it could be rectified. Now the Analytic and Dialectic of Aristotle grew directly out of this Sokratic procedure, and out of the Platonic dialogues in so far as they enforced and illustrated it. When Sokrates had supplied the negative stimulus and indication of what was amiss, together with the appeal to Induction as final authority, Aristotle furnished, or did much to furnish, the positive analysis and complementary precepts, necessary to clear up, justify, and assure the march of reasoned truth.[b] What Aristotle calls the syllogistic *principia*, or the principles of syllogistic demonstration, are nothing else than the steps

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[a] Aristot. Metaph. α. i. p. 993, b. 6: *τὸ ὅλον τι ἔχειν καὶ μέρος μὴ δύνασθαι δηλοῖ τὸ χαλεπὸν αὐτῆς* (*τῆς περὶ τῆς ἀληθείας θεωρίας.*)

Alexander ap. Schol. p. 104, Bonitz: *εἰς ἔννοιαν μὲν τοῦ ὅλου καὶ ἐπίστασιν πάντας ἐλθεῖν, μηδὲν δὲ μέρος αὐτῆς ἐξακριβώσασθαι δυνηθῆναι, δηλοῖ τὸ χαλεπὸν αὐτῆς.*

Aristotle indicates how much the *Philosophia Prima* of his earlier predecessors was uncongenial to and at variance with phenomenal experience—Metaphys. A. v. p. 986, b. 31.

To shape their theories in such a way—*τὰ φαινόμενα εἰ μέλλει τις ἀποδώσειν* (Metaphys. Λ. viii. p. 1073, b. 36), was an obligation which philosophers hardly felt incumbent on them prior to the Aristotelian age. Compare Simplikius (ad. Aristot. Physic. I.), p. 328, a. 1-26, Schol. Br.; Schol. (ad. Aristot. De Cœlo III. i.) p. 509, a. 26-p. 510, a. 13.

[b] Though the theorizing and the analysis of Aristotle presuppose and recognize the Sokratic procedure, yet, if we read the Xenophontic Memorabilia, IV. vii., and compare therewith the first two chapters of Aristotle's Metaphysica, in which he describes and extols *Philosophia Prima*, we shall see how radically antipathetic were the two points of view: Sokrates confining himself to practical results—*μέχρι τοῦ ὠφελιμοῦ*; Aristotle extolling *Philosophia Prima*, because it soars above practical results, and serves as its own reward, elevating the philosopher to a partial communion with the contemplative self-sufficiency of the Gods. Indeed the remark of Aristotle, p. 983, a. 1-6, denying altogether the jealousy ascribed to the Gods, &c., is almost a reply to the opinion expressed by Sokrates, that a man by such overweening researches brought upon himself the displeasure of the Gods, as prying into their secrets (Xen. Mem. IV. vii. 6; I. i. 12).

towards reasoned truth, and the precautions against those fallacious appearances that simulate it. The steps are stated in their most general terms, as involving both Deduction and Induction; though in Aristotle we find the deductive portion copiously unfolded and classified, while Induction, though recognized as the only verifying foundation of the whole, is left without expansion or illustration.

If we go through the Sokratic conversations as reported in the Memorabilia of Xenophon, we shall find illustration of what has been just stated: we shall see Sokrates recognizing and following the common speech of men, in propositions combining subject and predicate; but trying to fix the meaning of both these terms, and to test the consistency of the universal predications by appeal to particulars. The syllogizing and the inductive processes are exhibited both of them in actual work on particular points of discussion. Now on these processes Aristotle brings his analysis to bear, eliciting and enunciating in general terms their *principia* and their conditions. We have seen that he expressly declares the analysis of these *principia* to belong to First Philosophy.[a] And thus it is that First Philosophy as conceived by Aristotle, acknowledges among its *fundamenta* the habits of common Hellenic speech; subject only to correction and control by the Sokratic cross-examining and testing discipline. He stands distinguished among the philosophers for the respectful attention with which he collects and builds upon the beliefs actually prevalent among mankind.[b] Herein as well as in other respects his First Philosophy not only differed from that of all the pre-Sokratic philosophers (such as Herakleitus, Parmenides, Anaxagoras, &c.) by explaining the *principia* of Analytic and Dialectic as well as those of Physics and Physiology, but it also differed from that of the post-Sokratic and semi-Sokratic Plato, by keeping up a closer communion both with Sokrates and with common speech. Though Plato in his Dialogues of Search appears to apply the inductive discipline of Sokrates, and to handle the Universal as referable to and dependent upon its particulars; yet the Platonic *Philosophia Prima* proceeds upon a view totally different. It is a fusion of Parmenides with Herakleitus;[c] divorcing the Universal altogether from its particulars; treating the Universal as an

[a] Aristot. Metaph. Γ. iii. p. 1005, a. 19-b. 11.

[b] See Aristot. De Divinat. per Somnum, i. p. 462, b. 15; De Cœlo, I. iii. p. 270, b. 3, 20; Metaphys. A. ii. p. 982, a. 4-14. Alexander ap. Scholia, p. 525, b. 36, Br.: *ἐν πᾶσιν ἔθος ἀεὶ ταῖς κοιναῖς καὶ φυσικαῖς τῶν ἀνθρώπων προλήψεσιν ἀρχαῖς εἰς τὰ δεικνύμενα πρὸς αὐτοῦ χρῆσθαι.*

[c] Aristot. Metaph. A. vi. p. 987, a. 32; M. iv. p. 1078, b. 12. That Plato's *Philosophia Prima* involved a partial coin-

independent reality and as the only permanent reality; neglecting the particulars as so many unreal, evanescent, ever changing copies or shadows thereof. Aristotle expressly intimates his dissent from the divorce or separation thus introduced by Plato. He proclaims his adherence to the practice of Sokrates, which kept the two elements together, and which recognized particulars as the ultimate reality and test for the Universal.[a] Upon this doctrine his First Philosophy is built: being distinguished hereby from all the other varieties broached by either his predecessors or contemporaries.

The Maxim of Contradiction, which Aristotle proclaims as the first and firmest *principium* of syllogizing, may be found perpetually applied to particular cases throughout the Memorabilia of Xenophon and the Sokratic dialogues of Plato. Indeed the Elenchus for which Sokrates was so distinguished, is nothing more than an ever-renewed and ingenious application of it; illustrating the painful and humiliating effect produced even upon common minds by the shock of a plain contradiction, when a respondent, having at first confidently laid down some universal affirmative, finds himself unexpectedly compelled to admit, in some particular case, the contradictory negative. As against a Herakleitean, who saw no difficulty in believing both sides of the contradiction to be true at once, the Sokratic Elenchus would have been powerless. What Aristotle did was, to abstract and elicit the general rules of the process; to classify propositions according to their logical value, in such manner that he could formulate clearly the structure of the two propositions between which an exact contradictory antitheses subsisted. The important logical distinctions between propositions *contradictory* and propositions *contrary*, was first clearly enunciated by Aristotle; and, until this had been done, the Maxim of Contradiction could not have been laid down in a defensible manner. Indeed we may remark that, while this Maxim is first promulgated as a formula of First Philosophy in Book Γ. of the Metaphysica, it had already been tacitly assumed and applied by Aristotle throughout the De

cidence with that of Herakleitus is here distinctly announced by Aristotle: that it also included an intimate conjunction or fusion of Parmenides with Herakleitus is made out in the ingenious Dissertation of Herbart, De Platonici Systematis Fundamento, Göttingen (1805), which winds up with the following epigrammatic sentence as result (p. 50):—"Divide Heracliti γένεσιν οὐσίᾳ Parmenidis, et habebis Ideas Platonicas." Compare Plato, Republic VII. p. 515, seq.

[a] Aristot. Metaph. M. iv. p. 1078, b. 17, seq.; ix. p. 1086, a. 37: τὰ μὲν οὖν ἐν τοῖς αἰσθητοῖς καθ' ἕκαστα ῥεῖν ἐνόμιζον (Platonici) καὶ μένειν οὐθὲν αὐτῶν, τὸ δε καθόλου παρὰ ταῦτα εἶναί τε καὶ ἕτερόν τι εἶναι. τοῦτο δ', ὥσπερ ἐν τοῖς ἔμπροσθεν ἐλέγομεν, ἐκίνησε μὲν Σωκράτης διὰ τοὺς ὁρισμούς, οὐ μὴν ἐχώρισέ γε τῶν καθ' ἕκαστον. καὶ τοῦτο ὀρθῶς ἐνόησεν οὐ χωρίσας.

Interpretatione, Analytica, and Topica, as if it were obvious and uncontested. The First Philosophy of Aristotle was adapted to the conditions of ordinary colloquy as amended and tested by Sokrates, furnishing the theoretical basis of his practical Logic.

But, as Aristotle tells us, there were several philosophers and dialecticians who did not recognize the Maxim; maintaining that the same proposition might be at once true and false—that it was possible for the same thing both to be and not to be. How is he to deal with these opponents? He admits that he cannot demonstrate the Maxim against them, and that any attempt to do this would involve *Petitio Principii.* But he contends for the possibility of demonstrating it in a peculiar way—*refutatively* or *indirectly;* that is, provided that the opponents can be induced to grant (not indeed the truth of any proposition, to the exclusion of its contradictory antithesis, which concession he admits would involve *Petitio Principii,* but) the fixed and uniform signification of terms and propositions. Aristotle contends that the opponents ought to grant thus much, under penalty of being excluded from discussion as incapables or mere plants.[a] I do not imagine that the opponents themselves would have felt obliged to grant as much as he here demands. The *onus probandi* lay upon him, as advancing a positive theory; and he would have found his indirect or refutative demonstration not more available in convincing them than a direct or ordinary demonstration. Against respondents who proclaim as their thesis the negative of the Maxim of Contradiction, refutation and demonstration are equally impossible. No dialectical discussion could ever lead to any result; for you can never prove more against them than what their own thesis unequivocally avows.[b] As against Herakleitus and Anaxagoras, I do not think that Aristotle's qualified vindication of the Maxim has any effective bearing.

But Aristotle is quite right in saying that neither dialectical debate nor demonstration can be carried on unless terms and propositions be defined, and unless to each term there be assigned one special signification, or a limited number of special significations—excluding a certain number of others. This demand for definitions, and also the multiplied use of inductive interrogations, keeping the Universal implicated with and dependent upon its particulars—are the innovations which Aristotle expressly places to the credit of Sokrates. The Sokratic Elen-

[a] Aristot. Metaph. Γ. iv. p. 1006, a. 11, seq.

[b] Ibid. a. 26: *ἀναιρῶν γὰρ λόγον ὑπομένει λόγον.*—p. 1008, a. 30.

chus operated by first obtaining from the respondent a definition, and then testing it through a variety of particulars: when the test brought out a negative as against the pre-asserted affirmative, the contradiction between the two was felt as an intellectual shock by the respondent, rendering it impossible to believe both at once; and the unrivalled acuteness of Sokrates was exhibited in rendering such shock peculiarly pungent and humiliating. But the Sokratic Elenchus presupposes this psychological fact, common to most minds, ordinary as well as superior,—the intellectual shock felt when incompatible beliefs are presented to the mind at once. If the collocutors of Sokrates had not been so constituted by nature, the magic of his colloquy would have been unfelt and inoperative. Against a Herakleitean, who professed to feel no difficulty in believing both sides of a contradiction at once, he could have effected nothing: and if not he, still less any other dialectician. Proof and disproof, as distinguished one from the other, would have had no meaning; dialectical debate would have led to no result.

Thus, then, although Aristotle was the first to enunciate the Maxim of Contradiction in general terms, after having previously originated that logical distinction of contrary and contradictory Propositions and doctrine of legitimate *Antiphasis* which rendered such enunciation possible,—yet, when he tries to uphold it against dissentients, it cannot be said that he has correctly estimated the logical position of those whom he was opposing, or the real extent to which the defence of the Maxim can be carried without incurring the charge of *Petitio Principii*. As against Protagoras, no defence was needed, for the Protagorean "*Homo Mensura*" is not incompatible with the Maxim of Contradiction; while, as against Herakleitus, Anaxagoras, Parmenides, &c., no defence was practicable, and the attempt of Aristotle to construct one appears to me a failure. All that can be really done in the way of defence is, to prove the Maxim in its general enunciation by an appeal to particular cases: if your opponent is willing to grant these particular cases, you establish the general Maxim against him by way of Induction; if he will not grant them, you cannot prove the general Maxim at all. Suppose you are attempting to prove to an Herakleitean that an universal affirmative and its contradictory particular negative cannot be both true at once. You begin by asking him about particular cases, Whether it is possible that the two propositions—All men are mortal, and, Some men are not mortal—can both be true at once? If he admits that these two propositions cannot both be true at once, if he admits the like with regard to other similar

pairs of contradictories, and if he can suggest no similar pair in which both propositions are true at once, then you may consider yourself as having furnished a sufficient inductive proof, and you may call upon him to admit the Maxim of Contradiction in its general enunciation. But, if he will not admit it in the particular cases which you tender, or if, while admitting it in these, he himself can tender other cases in which he considers it inadmissible, then you have effected nothing sufficient to establish the general Maxim against him. The case is not susceptible of any other or better proof. It is in vain that Aristotle tries to diversify the absurdity, and to follow it out into collateral absurd consequences. If the Herakleitean does not feel any repulsive shock of contradiction in a definite particular case, if he directly announces that he believes the two propositions to be both at once true, then the collateral inconsistencies and derivative absurdities, which Aristotle multiplies against him, will not shock him more than the direct contradiction in its naked form. Neither the general reasoning of Aristotle, nor the Elenchus of Sokrates brought to bear in particular cases, would make any impression upon him; since he will not comply with either of the two conditions required for the Sokratic Elenchus: he will neither declare definitions, nor give suitable point and sequence to inductive interrogatories.

Nor is anything gained, as Aristotle supposes, by reminding the Herakleitean of his own practice in the daily concerns of life and in conversation with common persons: that he feeds himself with bread to-day, in the confidence that it has the same properties as it had yesterday;[a] that, if he wishes either to give or to obtain information, the speech which he utters or that which he acts upon must be either affirmative or negative. He will admit that he acts in this way, but he will tell you that he has no certainty of being right; that the negative may be true as well as the affirmative. He will grant that there is an inconsistency between such acts of detail and the principles of the Herakleitean doctrine, which recognize no real stability of any thing, but only perpetual flux or process; but inconsistency in detail will not induce him to set aside his principles. The truth is, that neither Herakleitus, nor Parmenides, nor Anaxagoras, nor Pythagoras, gave themselves much trouble to reconcile Philosophy with facts of detail. Each fastened upon some grand and impressive primary hypothesis, illustrated it by a few obvious facts in harmony therewith, and disregarded altogether the mass

[a] Aristot. Metaph. K. vi. p. 1063, a. 31.

of contradictory facts. That a favourite hypothesis should contradict physical details, was noway shocking to them. Both the painful feeling accompanying that shock, and the disposition to test the value of the hypothesis by its consistency with inductive details, became first developed and attended to in the dialectical age, mainly through the working of Sokrates. The Analytic and the First Philosophy of Aristotle were constructed after the time of Sokrates, and with regard, in a very great degree, to the Sokratic tests and conditions—to the indispensable necessity for definite subjects and predicates, capable of standing the inductive scrutiny of particulars. In this respect the *Philosophia Prima* of Aristotle stands distinguished from that of any of the earlier philosophers, and even from that of Plato. He departed from Plato by recognizing the *Hoc Aliquid* or the definite Individual, with its essential Predicates, as the foundation of the Universal, and by applying his analytical factors of Form and Matter to the intellectual generation of the Individual (τὸ σύνολον —τὸ συναμφότερον); and thus he devised a First Philosophy conformable to the habits of common speech as rectified by the critical scrutiny of Sokrates. We shall see this in the next Chapter. * * * *

[The Author's MS. breaks off here. What follows on the next page, as Chapter XII., is the exposition of Aristotle's Pyschology, originally contributed to the third edition of Professor Bain's work 'The Senses and the Intellect,' in 1868.]

CHAPTER XII.

DE ANIMÂ, ETC.

TO understand Aristotle's Psychology, we must look at it in comparison with the views of other ancient Greek philosophers on the same subject, as far as our knowledge will permit. Of these ancient philosophers, none have been preserved to us except Plato, and to a certain extent Epikurus, reckoning the poem of Lucretius as a complement to the epistolary remnants of Epikurus himself. The predecessors of Aristotle (apart from Plato) are known only through small fragments from themselves, and imperfect notices by others; among which notices the best are from Aristotle himself.

In the Timæus of Plato we find Psychology, in a very large and comprehensive sense, identified with Kosmology. The Kosmos, a scheme of rotatory spheres, has both a soul and a body: of the two, the soul is the prior, grander, and predominant, though both of them are constructed or put together by the Divine Architect or Demiurgus. The kosmical soul, rooted at the centre, and stretched from thence through and around the whole, is endued with self-movement, and with the power of initiating movement in the kosmical body; moreover, being cognitive as well as motive, it includes in itself three ingredients mixed together:—(1) The Same—the indivisible and unchangeable essence of Ideas; (2) The Diverse—the Plural—the divisible bodies or elements; (3) A Compound, formed of both these ingredients melted into one. As the kosmical soul is intended to know all the three—*Idem*, *Diversum*, and *Idem* with *Diversum* in one, so it must comprise in its own nature all the three ingredients, according to the received Axiom—Like knows like—Like is known by like. The ingredients are blended together according to a scale of harmonic proportion. The element *Idem* is placed in an even and undivided rotation of the outer or sidereal sphere of the Kosmos; the element *Diversum* is distributed among the rotations, all oblique, of the seven interior planetary spheres, that is, the five planets, with the Sun and Moon. Impressions of identity and diversity, derived either

from the ideal and indivisible, or from the sensible and divisible, are thus circulated by the kosmical soul throughout its own entire range, yet without either voice or sound. Reason and Science are propagated by the circle of *Idem:* Sense and Opinion, by those of *Diversum.* When these last-mentioned circles are in right movement, the opinions circulated are true and trustworthy.[a]

It is thus that Plato begins his Psychology with Kosmology: the Kosmos is in his view a divine immortal being or animal, composed of a spherical rotatory body and a rational soul, cognitive as well as motive. Among the tenants of this Kosmos are included, not only gods, who dwell in the peripheral or celestial regions, but also men, birds, quadrupeds, and fishes. These four inhabit the more central or lower regions of air, earth, and water. In describing men and the inferior animals, Plato takes his departure from the divine Kosmos, and proceeds downwards by successive stages of increasing degeneracy and corruption. The cranium of man was constructed as a little Kosmos, including in itself an immortal rational soul, composed of the same materials, though diluted and adulterated, as the kosmical soul; and moving with the like rotations, though disturbed and irregular, suited to a rational soul. This cranium, for wise purposes which Plato indicates, was elevated by the gods upon a tall body, with attached limbs for motion in different directions—forward, backward, upward, downward, to the right and left.[b] Within this body were included two inferior and mortal souls: one in the thoracic region near the heart, the other lower down, below the diaphragm, in the abdominal region; but both of them fastened or rooted in the spinal marrow or cord, which formed a continuous line with the brain above. These two souls were both emotional; the higher or *thoracic* soul being the seat of courage, energy, anger, &c., while to the lower or *abdominal* soul belonged appetite, desires, love of gain, &c. Both of them were intended as companions and adjuncts, yet in the relation of dependence and obedience, to the *rational* soul in the cranium above; which, though unavoidably debased and perturbed by such unworthy companionship, was protected partially against the contagion by the difference of location, the neck being built up as an isthmus of separation between the two. The thoracic soul, the seat of courage, was placed nearer to the

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[a] See this doctrine of the Timæus more fully expounded in 'Plato and the Other Companions of Sokrates,' III. xxxvi. pp. 250-256, seq.

[b] Plato, Timæus, p. 44, E.; 'Plato and Other Comp. of Sokr.', III, xxxvi. p. 264.

head, in order that it might be the medium for transmitting influence from the cranial soul above, to the abdominal soul below; which last was at once the least worthy and the most difficult to control. The heart, being the initial point of the veins, received the orders and inspirations of the cranial soul, transmitting them onward through its many blood-channels to all the sensitive parts of the body; which were thus rendered obedient, as far as possible, to the authority of man's rational nature.[a] The unity or communication of the three souls was kept up through the continuity of the cerebro-spinal column.

But, though by these arrangements the higher soul in the cranium waa enabled to control to a certain extent its inferior allies, it was itself much disturbed and contaminated by their reaction. The violence of passion and appetite, the constant processes of nutrition and sensation pervading the whole body, the multifarious movements of the limbs and trunk, in all varieties of direction,—these causes all contributed to agitate and to confuse the rotations of the cranial soul, perverting the arithmetical proportions and harmony belonging to them. The circles of Same and Diverse were made to convey false information; and the soul, for some time after its first junction with the body, became destitute of intelligence.[b] In mature life, indeed, the violence of the disturbing causes abates, and the man may become more and more intelligent, especially if placed under appropriate training and education. But in many cases no such improvement took place, and the rational soul of man was irrecoverably spoiled; so that new and worse breeds were formed, by successive steps of degeneracy. The first stage, and the least amount of degeneracy, was exhibited in the formation of woman; the original type of man not having included diversity of sex. By farther steps of degradation, in different ways, the inferior animals were formed—birds, quadrupeds, and fishes.[c] In each of these, the rational soul became weaker and worse; its circular rotations ceased with the disappearance of the spherical cranium, and animal appetites with sensational agitations were left without control. As man, with his two emotional souls and body joined on to the rational soul and cranium, was a debased copy of the perfect rational soul and sperical body of the divine Kosmos, so the other inhabitants of the Kosmos proceeded from still farther debasement and disrationalization of the original type of man.

[a] Plato, Timæus, p. 70; 'Plato and Other Comp. of Sokr.', III. pp. 271-272.

[b] Plato, Timæus, pp. 43-44; 'Plato and Other Comp. of Sokr.', III. pp. 262-264.

[c] Plato, Timæus, p. 91; 'Plato and Other Comp. of Sokr.', pp. 281-282.

Such is the view of Psychology given by Plato in the Timæus; beginning with the divine Kosmos, and passing downwards from thence to the triple soul of man, as well as to the various still lower successors of degenerated man. It is to be remarked that Plato, though he puts soul as prior to body in dignity and power, and as having for its functions to control and move body, yet always conceives soul as attached to body, and never as altogether detached, not even in the divine Kosmos. The soul, in Plato's view, is self-moving and self-moved: it is both *Primum Mobile* in itself, and *Primum Movens* as to the body; it has itself the corporeal properties of being extended and moved, and it has body implicated with it besides.

The theory above described, in so far as it attributes to the soul rational constituent elements (*Idem, Diversum*), continuous magnitude, and circular rotations, was peculiar to Plato, and is criticized by Aristotle as the peculiarity of his master.[a] But several other philosophers agreed with Plato in considering self-motion, together with motive causality and faculties perceptive and cognitive, to be essential characteristics of soul. Alkmæon declared the soul to be in perpetual motion, like all the celestial bodies; hence it was also immortal, as they were.[b] Herakleitus described it as the subtlest of elements, and as perpetually fluent; hence it was enabled to know other things, all of which were in flux and change. Diogenes of Apollonia affirmed that the element constituent of soul was air, at once mobile, all-penetrating, and intelligent. Demokritus declared that among the infinite diversity of atoms those of spherical figure were the constituents both of the element fire and of the soul: the spherical atoms were by reason of their figure the most apt and rapid in moving; it was their nature never to be at rest, and they imparted motion to everything else.[c] Anaxagoras affirmed soul to be radically and essentially distinct from every thing else, but to be the great primary source of motion, and to be endued with cognitive power, though at the same time not suffering impressions from without.[d] Empedokles considered soul to be a compound of the four elements—fire, water, air, earth; with love and hatred as principles of motion, the former producing aggregation of elements, the latter, disgregation: by means of each element the soul became cognizant of the like element in the Kosmos. Some Pythagoreans looked

[a] Aristot. De Animâ, I. iii. p. 407, a. 2.
[b] Ibid. ii. p. 405, a. 29.
[c] Ibid. p. 404, a. 8; p. 405, a. 22; p. 406, b. 17.
[d] Ibid. p. 405, a. 13, b. 19.

upon the soul as an aggregate of particles of extreme subtlety, which pervaded the air and were in perpetual agitation. Other Pythagoreans, however, declared it to be an harmonious or proportional mixture of contrary elements and qualities; hence its universality of cognition, extending to all.[a]

A peculiar theory was delivered by Xenokrates (who, having been fellow-pupil with Aristotle under Plato, afterwards conducted the Platonic School, during all the time that Aristotle taught at the Lykeium), which Aristotle declares to involve greater difficulty than any of the others. Xenokrates described the soul as "a number (a monad or indivisible unit) moving itself."[b] He retained the self-moving property which Plato had declared to be characteristic of the soul, while he departed from Plato's doctrine of a soul with continuous extension. He thus fell back upon the Pythagorean idea of number as the fundamental essence. Aristotle impugns, as alike untenable, both the two properties here alleged—number and self-motion. If the monad both moves and is moved (he argues), it cannot be indivisible; if it be moved, it must have position, or must be a point; but the motion of a point is a line, without any of that variety that constitutes life. How can the soul be a monad? or, if it be, what difference can exist between one soul and another, since monads cannot differ from each other except in position? How comes it that some bodies have souls and others not? and how, upon this theory, can we explain the fact that many animated bodies, both plants and animals, will remain alive after being divided, the monadic soul thus exhibiting itself as many and diverse? Besides, the monad set up by Xenokrates is hardly distinguishable from the highly attenuated body or spherical atom recognized by Demokritus as the origin or beginning of bodily motion.[c]

These and other arguments are employed by Aristotle to refute the theory of Xenokrates. In fact, he rejects all the theories then current. After having dismissed the self-motor doctrine, he proceeds to impugn the views of those who declared the soul to be a compound of all the four elements, in order that they might account for its percipient and cognitive faculties upon the maxim then very generally admitted[d]—That like is perceived and known by like. This theory, the principal champion of which was Empedokles, appears to Aristotle inadmissible. You say (he remarks) that like knows like; how

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[a] Aristot. De Animâ, I. ii. p. 404, a. 16; p. 407, b. 27.
[b] Ibid. iv. p. 408, b. 32.
[c] Ibid. p. 409, b. 12.
[d] Ibid. v. p. 409, b. 29.

does this consist with your other doctrine, that like cannot act upon, or suffer from, like, especially as you consider that both in perception and in cognition the percipient and cognizant suffers or is acted upon?[a] Various parts of the cognizant subject, such as bone, hair, ligaments, &c., are destitute of perception and cognition; how then can we know anything about bone, hair, and ligaments, since we cannot know them by like?[b] Suppose the soul to be compounded of all the four elements; this may explain how it comes to know the four elements, themselves, but not how it comes to know all the combinations of the four; now innumerable combinations of the four are comprised among the *cognita*. We must assume that the soul contains in itself not merely the four elements, but also the laws or definite proportions wherein they can combine; and this is affirmed by no one.[c] Moreover, *Ens* is an equivocal, or at least a multivocal, term; there are *Entia* belonging to each of the ten Categories. Now the soul cannot include in itself all the ten, for the different Categories have no elements in common; in whichever Category you rank the soul, it will know (by virtue of likeness) the *cognita* belonging to that category, but it will not know the *cognita* belonging to the other nine.[d] Besides, even if we grant that the soul includes all the four elements, where is the cementing principle that combines all the four into one? The elements are merely matter; and what holds them together must be the really potent principle of soul; but of this no explanation is given.[e]

Some philosophers have assumed (continues Aristotle) that soul pervades the whole Kosmos and its elements; and that it is inhaled by animals in respiration along with the air.[f] They forget that all plants, and even some animals, live without respiring at all; moreover, upon this theory, air and fire also, as possessing soul, and what is said to be a better soul, ought (if the phrase were permitted) to be regarded as animals. The soul of air or fire must be homogeneous in its parts; the souls of animals are not homogeneous, but involve several distinct parts or functions.[g] The soul perceives, cogitates, opines, feels, desires, repudiates; farther, it moves the body locally, and brings about the growth and decay of the body. Here we have a new mystery:[h]—Is the whole soul engaged in the performance

[a] Aristot. De Animâ, I. v. p. 410, a. 25.
[b] Ibid. a. 30.
[c] Ibid. p. 409, b. 28; p. 410, a. 12.
[d] Ibid. p. 410, a. 20.
[e] Ibid. p. 410, b. 10.
[f] Ibid. ii. p. 404, a. 9: *τοῦ ζῆν ὅρον εἶναι τὴν ἀναπνοήν*, &c. Compare the doctrine of Demokritus.
[g] Ibid. v. p. 411, a. 1, 8, 16.
[h] Ibid. a. 30.

of each of these functions, or has it a separate part exclusively consecrated to each? If so, how many are the parts? Some philosophers (Plato among them) declare the soul to be divided, and that one part cogitates and cognizes, while another part desires. But upon that supposition what is it that holds these different parts together? Certainly not the body (which is Plato's theory); on the contrary, it is the soul that holds together the body; for, as soon as the soul is gone, the body rots and disappears.[a] If there be anything that keeps together the divers parts of the soul as one, that something must be the true and fundamental soul; and we ought not to speak of the soul as having parts, but as essentially one and indivisible, with several distinct faculties. Again, if we are to admit parts of the soul, does each part hold together a special part of the body, as the entire soul holds together the entire body? This seems impossible; for what part of the body can the Noûs or Intellect (*e.g.*) be imagined to hold together? And, besides, several kinds of plants and of animals may be divided, yet so that each of the separate parts shall still continue to live; hence it is plain that the soul in each separate part is complete and homogeneous.[b]

Aristotle thus rejects all the theories proposed by antecedent philosophers, but more especially the two following:—That the soul derives its cognitive powers from the fact of being compounded of the four elements; That the soul is self-moved. He pronounces it incorrect to say that the soul is moved at all.[c] He farther observes that none of the philosophers have kept in view either the full meaning or all the varieties of soul; and that none of these defective theories suffices for the purpose that every good and sufficient theory ought to serve, viz., not merely to define the essence of the soul, but also to define it in such a manner that the concomitant functions and affections of the soul shall all be deducible from it.[d] Lastly, he points out that most of his predecessors had considered that the prominent characteristics of soul were—to be motive and to be percipient:[e] while, in his opinion, neither of these two characteristics is universal or fundamental.

Aristotle requires that a good theory of the soul shall explain alike the lowest vegetable soul, and the highest functions of the human or divine soul. And, in commenting on those theorists who declared that the essence of soul consisted in movement, he

[a] Aristot. De Animâ, I. v. p. 411, b. 8.
[b] Ibid. b. 15-27.
[c] Ibid. a. 25.
[d] Ibid. i. p. 402, b. 16, seq.; v. p. 409, b. 15.
[e] Ibid. ii. p. 403, b. 30.

remarks that their theory fails altogether in regard to the Noûs (or cogitative and intellective faculty of the human soul); the operation of which bears far greater analogy to rest or suspension of movement than to movement itself.[a]

We shall now proceed to state how Aristotle steers clear (or at least believes himself to steer clear) of the defects that he has pointed out in the psychological theories of his predecessors. Instead of going back (like Empedokles, Plato, and others) to a time when the Kosmos did not yet exist, and giving us an hypothesis to explain how its parts came together or were put together, he takes the facts and objects of the Kosmos as they stand, and distributes them according to distinctive marks alike obvious, fundamental, and pervading; after which he seeks a mode of explanation in the principles of his own First Philosophy or Ontology. Whoever had studied the Organon and the Physica of Aristotle (apparently intended to be read prior to the treatise De Animâ) would be familiar with his distribution of *Entia* into ten Categories, of which, Essence or Substance was the first and the fundamental. Of these Essences or Substances the most most complete and recognized were physical or natural bodies; and among such bodies one of the most striking distinctions, was between those that had life and those that had it not. By life, Aristotle means keeping up the processes of nutrition, growth, and decay.[b]

"To live" (Aristotle observes) is a term used in several different meanings; whatever possesses any one of the following four properties is said to live:[c] (1) Intellect, (2) Sensible perception, (3) Local movement and rest, (4) Internal movement of nutrition, growth, and decay. But of these four the last is the only one common to all living bodies without exception; it is the foundation presupposed by the other three. It is the only one possessed by plants,[d] and common to all plants as well as to all animals—to all animated bodies.

What is the animating principle belonging to each of these bodies, and what is the most general definition of it? Such is the problem that Aristotle states to himself about the soul.[e] He explains it by a metaphysical distinction first introduced (appar-

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[a] Aristot. De Animâ, I. iii. p. 407, a. 32: ἔτι δ' ἡ νόησις ἔοικεν ἠρεμήσει τινὶ ἢ ἐπιστάσει μᾶλλον ἢ κινήσει.

[b] Ibid. II. i. p. 412, a. 11; οὐσίαι δὲ μάλιστ' εἶναι δοκοῦσι τὰ σώματα, καὶ τούτων τὰ φυσικά· τῶν δὲ φυσικῶν τὰ μὲν ἔχει ζωήν, τὰ δ' οὐκ ἔχει· ζωὴν δὲ λέγω, τὴν δι' αὐτοῦ τροφήν καὶ αὔξησιν καὶ φθίσιν.

[c] Ibid. ii. p. 413, a. 22: πλεοναχῶς δὲ τοῦ ζῆν λεγομένου, κἂν ἕν τι τούτων ἐνυπάρχῃ μόνον, ζῆν αὐτό φαμεν, &c.

[d] Ibid. I. v. p. 411, b. 27, ad fin.

[e] Ibid. II. ii. p. 413, b. 11: ἡ ψυχὴ τῶν εἰρημένων τούτων ἀρχή.—Ibid. i. p. 412, a. 5: τίς ἂν εἴη κοινότατος λόγος αὐτῆς.

ently) by himself into *Philosophia Prima.* He considers Substance or Essence as an ideal compound; not simply as clothed with all the accidents described in the nine last Categories, but also as being analysable in itself, even apart from these accidents, into two abstract, logical, or notional elements or *principia*—Form and Matter. This distinction is borrowed from the most familiar facts of the sensible world—the shape of solid objects. When we see or feel a cube of wax, we distinguish the cubic shape from the waxen material;[a] we may find the like shape in many other materials—wood, stone, &c.; we may find the like material in many different shapes—sphere, pyramid, &c.; but the matter has always some shape, and the shape has always some matter. We can name and reason about the matter, without attending to the shape, or distinguishing whether it be cube or sphere; we can name and reason about the shape, without attending to the material shaped, or to any of its various peculiarities. But this, though highly useful, is a mere abstraction or notional distinction. There can be no real separation between the two: no shape without some solid material; no solid material without some shape. The two are correlates; each of them implying the other, and neither of them admitting of being realized or actualized without the other.

This distinction of Form and Matter is one of the capital features of Aristotle's *Philosophia Prima.* He expands it and diversifies it in a thousand ways, often with subtleties very difficult to follow; but the fundamental import of it is seldom lost—two correlates inseparably implicated in fact and reality in every concrete individual that has received a substantive name, yet logically separable and capable of being named and considered apart from each other. The Aristotelian analysis thus brings out, in regard to each individual substance (or *Hoc Aliquid,* to use his phrase), a triple point of view: (1) The Form; (2) The Matter; (3) The compound or aggregate of the two—in other words, the inseparable *Ens,* which carries us out of the domain of logic or abstraction into that of the concrete or reality.[b]

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[a] Aristot. De Animâ, II. i. p. 412, b. 7: *τὸν κηρὸν καὶ τὸ σχῆμα.*

[b] Aristot. Metaphys. Z. iii. p. 1029, a. 1-34; De Animâ, II. i. p. 412, a. 6; p. 414, a. 15.

In the first book of the Physica, Aristotle pushes this analysis yet further, introducing three *principia* instead of two:—(1) Form, (2) Matter, (3) Privation (of Form); he gives a distinct general name to the negation as well as to the affirmation; he provides a sign *minus* as counter-denomination to the sign *plus.* But he intimates that this is only the same analysis more minutely discriminated, or in a different point of view: *διὸ ἔστι μὲν ὡς δύο λεκτέον εἶναι τὰς ἀρχάς, ἔστι δ' ὡς τρεῖς* (Phys. I. vii. p. 190, b. 29).

Materia Prima (Aristotle says, Phys. I. vii. p. 191, a. 8) is "knowable only by analogy"—*i.e.,* explicable only by illus-

Aristotle farther recognizes, between these two logical correlates, a marked difference of rank. The Form stands first, the Matter second,—not in time, but in notional presentation. The Form is higher, grander, prior in dignity and esteem, more *Ens*, or more nearly approaching to perfect entity; the Matter is lower, meaner, posterior in dignity, farther removed from that perfection. The conception of wax, plaster, wood, &c., without any definite or determinate shape, is confused and unimpressive; but a name, connoting some definite shape, at once removes this confusion, and carries with it mental pre-eminence, alike as to phantasy, memory, and science. In the logical hierarchy of Aristotle, Matter is the inferior and Form the superior;[a] yet neither of the two can escape from its relative character: Form requires Matter for its correlate, and is nothing in itself or apart,[b] just as much as Matter requires Form; though from the inferior dignity of Matter we find it more frequently described as the second or correlate, while Form is made to stand forward as the *relatum*. For complete reality, we want the concrete individual having the implication of both; while, in regard to each of the constituents *per se*, no separate real existence can be affirmed, but only a nominal or logical separation.

This difference of rank between Matter and Form—that the first is inferior and the last the superior—is sometimes so much put in the foreground, that the two are conceived in a different manner and under other names, as Potential and Actual. Matter is the potential, imperfect, inchoate, which the supervening Form actualizes into the perfect and complete; a transition from half-reality to entire reality or act. The Potential is the undefined or indeterminate[c]—what may be or may not be—

trative examples: as the brass is to the statue, as the wood is to the couch, &c.; natural substances being explained from works of art, as is frequent with Aristotle.

[a] Aristot. De Gener. Animal. II. i. p. 729, a. 10. Matter and Form are here compared to the female and the male—to mother and father. Form is a cause operative, Matter a cause co-operative, though both are alike indispensable to full reality. Compare Physic. I. ix. p. 192, a. 13: *ἡ μὲν γὰρ ὑπομένουσα συναιτία τῇ μορφῇ τῶν γινομένων ἐστίν, ὥσπερ μήτηρ·—ἀλλὰ τοῦτ' ἔστιν ἡ ὕλη, ὥσπερ ἂν εἰ θῆλυ ἄῤῥενος καὶ αἰσχρὸν καλοῦ (ἐφίετο).*—De Partibus Animalium, I. i. p. 640, b. 28: *ἡ γὰρ κατὰ τὴν μορφὴν φύσις κυριωτέρα τῆς ὑλικῆς φύσεως.*

Metaphys. Z. iii. p. 1029, a. 5: *τὸ εἶδος τῆς ὕλης πρότερον καὶ μᾶλλον ὄν*—p. 1039, a. 1.

See in Schwegler, pp. 13, 42, 83, Part II. of his Commentary on the Aristotelian Metaphysica.

[b] Aristot. Metaph. Z. viii. p. 1033, b. 10, seq.

[c] Ibid, Θ. viii. p. 1050, b. 10. He says, p. 1048, a. 35, that this distinction between Potential and Actual cannot be defined, but can only be illustrated by particular examples, several of which he proceeds to enumerate. Trendelenburg observes (Note ad. Aristot. De Animâ, p. 307):—"*Δύναμις* contraria adhuc in se inclusa tenet, ut in utrumque abire possit: *ἐνέργεια* alterum excludit." Compare also ib. p. 302. This *May or May not be* is the widest and most general sense of the terms *δύναμις* and *δυνατόν*,

what is not yet actual, and may perhaps never become so, but is prepared to pass into actuality when the energizing principle comes to aid.. In this way of putting the antithesis, the Potential is not so much implicated with the Actual as merged and suppressed to make room for the Actual: it is as a half-grown passing into a full-grown; being itself essential as a preliminary stage in the order of logical generation.[a] The three logical divisions—Matter, Form, and the resulting Compound or Concrete (*τὸ σύνολον, τὸ συνειλημμένον*), are here compressed into two—the Potential and the Actualization thereof. Actuality (*ἐνέργεια, ἐντελέχεια*) coincïdes in meaning partly with the Form, partly with the resulting Compound; the Form being so much exalted, that the distinction between the two is almost effaced.[b]

Two things are to be remembered respecting Matter, in its Aristotelian (logical or ontological) sense: (1) It may be Body, but it is not necessarily Body;[c] (2) It is only intelligible as the correlate of Form: it can neither exist by itself, nor can it be known by itself (*i.e.*, when taken out of that relativity). This deserves notice, because to forget the relativity of a relative word, and to reason upon it as if it were an absolute, is an oversight not unfrequent. Furthermore, each variety of Matter has its appropriate Form, and each variety of Form its appropriate Matter, with which it correlates. There are various stages or gradations of Matter; from *Materia Prima*, which has no Form

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common to all the analogical or derivative applications that Aristotle points out as belonging to them. It is more general than that which he gives as the *κύριος ὅρος τῆς πρώτης δυνάμεως—ἀρχὴ μεταβλητικὴ ἐν ἄλλῳ ἢ ᾗ ἄλλο*, and ought seemingly to be itself considered as the *κύριος ὅρος*. Cf. Arist. Metaphys. Δ. xii. p. 1020, a. 5, with the comment of Bonitz, who remarks upon the loose language of Aristotle in this chapter but imputes to Aristotle a greater amount of contradiction than he seems to deserve (Comm. ad Metaphys. pp. 256, 393).

[a] *Ens potentiâ* is a variety of *Ens* (Arist. Metaph. Δ. vii. p. 1017, b. 6), but an imperfect variety: it is *ὂν ἀτελές*, which may become matured into *ὂν τέλειον, ὂν ἐντελεχείᾳ*, or *ἐνεργείᾳ* (Metaphys. Θ. i. p. 1045, a. 34).

Matter is either remote or proximate, removed either by one stage or several stages from the *σύνολον* in which it culminates. Strictly speaking, none but proximate matter is said to exist *δυνάμει*. Alexander Schol. (ad Metaph. Θ. p. 1049, a. 19) p. 781, b. 39: *ἡ πόρρω ὕλη οὐ λέγεται δυνάμει. τί δή ποτε; ὅτι οὐ παρωνυμιάζομεν τὰ πράγματα ἐκ τῆς πόρρω ἀλλ' ἐκ τῆς προσεχοῦς· λέγομεν γὰρ τὸ κιβώτιον ξύλινον ἐκ τῆς προσεχοῦς, ἀλλ' οὐ γήϊνον ἐκ τῆς πόρρω.*

[b] Aristot. Metaphys. H. i. p. 1042, a. 25, seq. He scarcely makes any distinction here between *ὕλη* and *δύναμις*, or between *μορφὴ* and *ἐνέργεια* (cf. Θ. viii. p. 1050, a. 15).

Alexander in his Commentary on this book (Θ. iii. p. 1047, a. 30) p. 542, Bonitz's edit., remarks that *ἐνέργεια* is used by Aristotle in a double sense; sometimes meaning *κίνησις πρὸς τὸ τέλος*, sometimes meaning the *τέλος* itself. Comp. H. iii. p. 1043, a. 32; also the commentary of Bonitz, p. 393.

[c] Aristot. Metaph. Z. xi. p. 1036, a. 8: *ἡ δ' ὕλη ἄγνωστος καθ' αὑτήν. ὕλη δ' ἡ μὲν αἰσθητή, ἡ δὲ νοητή· αἰσθητὴ μὲν οἷον χαλκὸς καὶ ξύλον καὶ ὅση κινητὴ ὕλη, νοητὴ δὲ ἡ ἐν τοῖς αἰσθητοῖς ὑπάρχουσα μὴ ᾗ αἰσθητά, οἷον τὰ μαθηματικά.*—p. 1035, a. 7.

Physica, III. vi. p. 207, a. 26; De Generat. et Corrupt. I. v. p. 320, b. 14-25.

at all, passing upwards through successive partial developments to *Materia Ultima;* which last is hardly[a] distinguishable from Form or from *Materia Formata.*

The distinction above specified is employed by Aristotle in his exposition of the Soul. The soul belongs to the Category of Substance or Essence (not to that of Quantity, Quality, &c.); but of the two points of view under which Essence may be presented, the soul ranks with Form, not with Matter—with the Actual, not with the Potential. The Matter to which (as correlate) soul stands related, is a natural body (*i.e.*, a body having within it an inherent principle of motion and rest) organized in a certain way, or fitted out with certain capacities and preparations to which soul is the active and indispensable complement. These capacities would never come into actuality without the soul; but, on the other hand, the range of actualities or functions in the soul depends upon, and is limited by, the range of capacities ready prepared for it in the body. The implication of the two constitutes the living subject, with all its functions, active and passive. If the eye were an animated or living subject, seeing would be its soul; if the carpenter's axe were living, cutting would be its soul;[b] the matter would be the lens or the iron in which this soul is embodied. It is not indispensable, however, that all the functions of the living subject should be at all times in complete exercise: the subject is still living, even while asleep; the eye is still a good eye, though at the moment closed. It is enough if the functional aptitude exist as a dormant property, ready to rise into activity, when the proper occasions present themselves. This minimum of Form suffices to give living efficacy to the potentialities of body; it is enough that a man, though now in a dark night and seeing nothing, will see as soon as the sun rises; or that he knows geometry, though he is not now thinking of a geometrical problem. This dormant possession is what Aristotle calls the First Entelechy or Energy, *i.e.*, the lowest stage of Actuality, or the minimum of influence required to transform Potentiality into Actuality. The Aristotelian definition of Soul is thus: The first

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[a] Aristot. De Animâ, II. ii. p. 414, a. 25: ἑκάστου γὰρ ἡ ἐντελέχεια ἐν τῷ δυνάμει ὑπάρχοντι καὶ τῇ οἰκείᾳ ὕλῃ πέφυκεν ἐγγίνεσθαι.—Physica, II. ii. p. 194, b. 8: ἔτι τῶν πρός τι ἡ ὕλη· ἄλλῳ γὰρ εἴδει ἄλλη ὕλη.—Metaph. H. vi. p. 1045, b. 17: ἔστι δ', ὥσπερ εἴρηται, καὶ ἡ ἐσχάτη ὕλη καὶ ἡ μορφὴ ταὐτό καὶ δυνάμει, τὸ δὲ ἐνεργείᾳ. See upon this doctrine Schwegler's Commentary, pp. 100, 154, 173, 240, Pt. 2nd. Compare also Arist. De Gener. Animal. II. i. p. 735, a. 9; also De Cœlo, IV. iii. p. 310, b. 14.

[b] Aristot. De Animâ, II. i. p. 412, b. 18: εἰ γὰρ ἦν ὁ ὀφθαλμὸς ζῷόν, ψυχὴ ἂν ἦν αὐτοῦ ἡ ὄψις· αὕτη γὰρ οὐσία ὀφθαλμοῦ ἡ κατὰ τὸν λόγον. ὁ δ' ὀφθαλμὸς ὕλη ὄψεως, ἧς ἀπολειπούσης οὐκέτ' ὀφθαλμός, πλὴν ὁμωνύμως, καθάπερ ὁ λίθινος καὶ ὁ γεγραμμένος.

entelechy of a natural organized body, having life in potentiality.[a] This is all that is essential to the soul; the second or higher entelechy (actual exercise of the faculties) is not a constant or universal property.[b]

In this definition of Soul, Aristotle employs his own *Philosophia Prima* to escape the errors committed by prior philosophers. He does not admit that the soul is a separate entity in itself; or that it is composed (as Empedokles and Demokritus had said) of corporeal elements, or (as Plato had said) of elements partly corporeal, partly logical and notional. He rejects the imaginary virtues of number, invoked by the Pythagoreans and Xenokrates; lastly, he keeps before him not merely man, but all the varieties of animated objects, to which his definition must be adapted. His first capital point is to put aside the alleged identity, or similarity, or sameness of elements, between soul and body; and to put aside equally any separate existence or substantiality of soul. He effects both these purposes by defining them as essentially *relatum* and correlate; the soul, as the *relatum*, is unintelligible and unmeaning without its correlate, upon which accordingly its definition is declared to be founded.

The real animated subject may be looked at either from the point of view of the *relatum* or from that of the correlate; but, though the two are thus logically separable, in fact and reality they are inseparably implicated; and, if either of them be withdrawn, the animated subject disappears. "The soul (says Aristotle) is not any variety of body, but it cannot be without a body; it is not a body, but it is something belonging to or related to a body; and for this reason it is *in* a body, and in a body of such or such potentialities."[c] Soul is to body (we thus read), not as a compound of like elements, nor as a type is to its copy, or *vice versâ*, but as a *relatum* to its correlate; dependent upon the body for all its acts and manifestations, and bringing to consummation what in the body exists as potentiality only. Soul, however, is better than body; and the animated being is better than the inanimate by reason of its soul.[d]

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[a] Aristot. De Animâ, II. i. p. 412, a. 27: *διὸ ψυχή ἐστιν ἐντελέχεια ἡ πρώτη σώματος φυσικοῦ δυνάμει ζωὴν ἔχοντος· τοιοῦτο δὲ ὃ ἂν ᾖ ὀργανικόν.* Compare Metaphysica, Z. x. p. 1035, b. 14-27.

[b] Aristot. De Animâ, II. ii. p. 414, a. 8-18. The distinction here taken between the first or lower stage of Entelechy, and the second or higher stage, coincides substantially with the distinction in the Nikomachean Ethica and elsewhere between *ἕξις* and *ἐνέργεια*. See Topica, IV. v. p. 125, b. 15: Ethic. Nikom. II. i.-v. p. 1103 seq.

[c] Aristot. De Animâ, II. ii. p. 414, a, 19: *καὶ διὰ τοῦτα καλῶς ὑπολαμβάνουσιν οἷς δοκεῖ μήτ' ἄνευ σώματος εἶναι μήτε σῶμά τι ἡ ψυχή· σῶμα μὲν γὰρ οὐκ ἔστι, σώματος δέ τι, καὶ διὰ τοῦτο ἐν σώματι ὑπάρχει, καὶ ἐν σώματι τοιούτῳ.* Compare Aristot. De Juventute et Senectute, i. p. 467, b. 14.

[d] Aristot. De Generat. Animal. II. i. p. 731, b. 29.

The animated subject is thus a form immersed or implicated in matter; and all its actions and passions are so likewise.[a] Each of these has its formal side, as concerns the soul, and its material side, as concerns the body. When a man or animal is angry, for example, this emotion is both a fact of the soul and a fact of the body: in the first of these two characters, it may be defined as an appetite for hurting some one who has hurt us; in the second of the two, it may be defined as an ebullition of the blood and heat round the heart.[b] The emotion, belonging to the animated subject or aggregate of soul and body, is a complex fact having two aspects, logically distinguishable from each other, but each correlating and implying the other. This is true not only in regard to our passions, emotions, and appetites, but also in regard to our perceptions, phantasms, reminiscences, reasonings, efforts of attention in learning, &c. We do not say that the soul weaves or builds (Aristotle observes[c]): we say that the animated subject, the aggregate of soul and body, *the man*, weaves or builds. So we ought also to say, not that the soul feels anger, pity, love, hatred, &c., or that the soul learns, reasons, recollects, &c., but that the man with his soul does these things. The actual movement throughout these processes is not in the soul, but in the body; sometimes going *to* the soul (as in sensible perception), sometimes proceeding *from* the soul to the body (as in the case of reminiscence). All these processes are at once corporeal and psychical, pervading the whole animated subject, and having two aspects coincident and inter-dependent, though logically distinguishable. The perfect or imperfect discrimination by the sentient soul depends upon the good or bad condition of the bodily sentient organs; an old man that has become shortsighted would see as well as before, if he could regain his youthful eye. The defects of the soul arise from defects in the bodily organism to which it belongs, as in cases of drunkenness or sickness; and this is not less true of the Noûs, or intellective soul, than of the sentient soul.[d] Intelligence, as well as emotion, are phenomena, not of the bodily organism simply, nor of the Noûs simply, but of the community or partnership of which both are members; and, when intelli-

[a] Aristot. De Animâ, I. i. p. 403, a. 25: τὰ πάθη λόγοι ἔνυλοί εἰσιν. Compare II. i. p. 412, b. 10-25; p. 413, a. 2.

[b] Ibid. I. i. p. 403, a. 30.

[c] Ibid. iv. p. 408, b. 12. τὸ δὲ λέγειν ὀργίζεσθαι τὴν ψυχὴν ὅμοιον κἂν εἴ τις λέγοι τὴν ψυχὴν ὑφαίνειν ἢ οἰκοδομεῖν· βέλτιον γὰρ ἴσως μὴ λέγειν τὴν ψυχὴν ἐλεεῖν ἢ μανθάνειν ἢ διανοεῖσθαι, ἀλλὰ τὸν ἄνθρωπον τῇ ψυχῇ· τοῦτο δὲ μὴ ὡς ἐν ἐκείνῃ τῆς κινήσεως οὔσης, ἀλλ' ὅτε μὲν μέχρι ἐκείνης, ὅτε δ' ἀπ' ἐκείνης, &c. Again, b. 30: ὅτι μὲν οὖν οὐχ οἷόν τε κινεῖσθαι τὴν ψυχὴν, φανερὸν ἐκ τούτων.

[d] Ibid. b. 26. Compare a similar doctrine in the Timæus of Plato, p. 86, B.-D.

gence gives way, this is not because the Noûs itself is impaired, but because the partnership is ruined by the failure of the bodily organism.

Respecting the Noûs (the theorizing Noûs), we must here observe that Aristotle treats it as a separate kind or variety of soul, with several peculiarities. We shall collect presently all that he says upon that subject, which is the most obscure portion of his psychology.

In regard to soul generally, the relative point of view with body as the correlate is constantly insisted on by Aristotle; without such correlate his assertions would have no meaning. But the relation between them is presented in several different ways. The soul is the cause and principle of a living body;[a] by which is meant, not an independent and pre-existent something that brings the body into existence but, an immanent or indwelling influence which sustains the unity and guides the functions of the organism. According to the quadruple classification of Cause recognized by Aristotle — Formal, Material, Movent, and Final—the body furnishes the Material Cause, while the soul comprises all the three others. The soul is (as we have already seen) the Form in relation to the body as Matter, but it is, besides, the Movent, inasmuch as it determines the local displacement as well as all the active functions of the body—nutrition, growth, generation, sensation, &c.; lastly, it is also the Final Cause, since the maintenance and perpetuation of the same Form, in successive individuals, is the standing purpose aimed at by each body in the economy of Nature.[b] Under this diversity of aspect, soul and body are reciprocally integrant and complementary of each other, the real integer (the Living or Animated Body) including both.

Soul, in the Aristotelian point of view—what is common to all living bodies, comprises several varieties. But these varieties are not represented as forming a genus with co-ordinate species under it, in such manner that the counter-ordinate species, reciprocally excluding each other, are, when taken together, co-extensive with the whole genus; like man and brute in regard to animal. The varieties of soul are distributed into successive stages gradually narrowing in extension and enlarging in comprehension; the first or lowest stage being co-extensive with the whole, but connoting only two or three simple attributes; the second, or next above, connoting all these and more besides, but

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[a] Aristot. De Animâ, II. iv. p. 415, b. 7: ἔστι δ' ἡ ψυχὴ τοῦ ζῶντος σώματος αἰτία καὶ ἀρχή· ταῦτα δὲ πολλαχῶς λέγεται.

[b] Ibid. b. 1.

denoting only part of the individuals denoted by the first; the third connoting all this and more, but denoting yet fewer individuals; and so on forward. Thus the concrete individuals, called living bodies, include all plants as well as all animals; but the soul, called Nutritive by Aristotle, corresponding thereto connotes only nutrition, growth, decay, and generation of another similar individual.[a] In the second stage, plants are left out, but all animals remain: the Sentient soul, belonging to animals, but not belonging to any plants, connotes all the functions and faculties of the Nutritive soul, together with sensible perception (at least in its rudest shape) besides.[b] We proceed onward in the same direction, taking in additional faculties—the Movent, Appetitive, Phantastic (Imaginative), Noëtic (Intelligent) soul, and thus diminishing the total of individuals denoted. But each higher variety of soul continues to possess all the faculties of the lower. Thus the Sentient soul cannot exist without comprehending all the faculties of the Nutritive, though the Nutritive exists (in plants) without any admixture of the Sentient. Again, the Sentient soul does not necessarily possess either memory, imagination, or intellect (Noûs); but no soul can be either Imaginative or Noëtic, without being Sentient as well as Nutritive. The Noëtic Soul, as the highest of all, retains in itself all the lower faculties; but these are found to exist apart from it.[c]

We may remark here that the psychological classification of Aristotle proceeds in the inverse direction to that of Plato. In the Platonic Timæus we begin with the grand soul of the Kosmos, and are conducted by successive steps of degradation to men, animals, plants; while Aristotle lays his foundation in the largest, most multiplied, and lowest range of individuals, carrying us by successive increase of conditions to the fewer and the higher.

The lowest or Nutritive soul, in spite of the small number of conditions involved in it, is the indispensable basis whereon all the others depend. None of the other souls can exist apart from it.[d] It is the first constituent of the living individual—the implication of Form with Matter in a natural body suitably

[a] In the Aristotelian treatise De Plantis, p. 815, b. 16, it is stated that Empedokles, Anaxagoras, and Demokritus, all affirmed that plants had both intellect and cognition up to a certain moderate point. We do not cite this treatise as the composition of Aristotle, but it is reasonably good evidence in reference to the doctrine of those other philosophers.

[b] Aristot. De Animâ, I. v. p. 411, b. 28.

[c] Ibid. II. ii. p. 413, a. 25-30, b. 32; iii. p. 414, b. 29; p. 415, a. 10.

[d] Ibid. iv. p. 415, a. 25: *πρώτη καὶ κοινοτάτη δύναμίς ἐστι ψυχῆς, καθ' ἣν ὑπάρχει τὸ ζῆν ἅπασιν.*—p. 415, b. 8: *τοῦ ζῶντος σώματος αἰτία καὶ ἀρχή.*—III. xii. p. 434, a. 22-30, b. 24. Aristot. De Respiratione, viii. p. 474, a. 30, b. 11.

organized; it is the preservative of the life of the individual, with its aggregate of functions and faculties, and with the proper limits of size and shape that characterize the species;[a] it is, moreover, the preservative of perpetuity to the species, inasmuch as it prompts and enables each individual to generate and leave behind a successor like himself; which is the only way that an individual can obtain quasi-immortality, though all aspire to become immortal.[b] This lowest soul is the primary cause of digestion and nutrition. It is cognate with the celestial heat, which is essential also as a co-operative cause; accordingly, all animated bodies possess an inherent natural heat.[c]

We advance upwards now from the nutritive soul to that higher soul which is at once nutritive and Sentient; for Aristotle does not follow the example of Plato in recognizing three souls to one body, but assigns only one and the same soul, though with multiplied faculties and functions, to one and the same body. Sensible perception, with its accompaniments, forms the characteristic privilege of the animal as contrasted with the plant.[d] Sensible perception admits of many diversities, from the simplest and rudest tactile sensation, which even the lowest animals cannot be without, to the full equipment of five senses which Aristotle declares to be a maximum not susceptible of increase.[e] But the sentient faculty, even in its lowest stage, indicates a remarkable exaltation of the soul in its character of form. The soul, *quâ* sentient and percipient, receives the form of the *perceptum* without the matter; whereas the nutritive soul cannot disconnect the two, but receives and appropriates the nutrient substance, form and matter in one and combined.[f] Aristotle illustrates this characteristic feature of sensible perception by recurring to his former example of the wax and the figure. Just as wax receives from a signet the impression engraven thereon, whether the matter of the signet be iron, gold, stone, or wood; as the impression stamped has no regard to the matter, but reproduces only the figure engraven on the signet,

[a] Aristot. De Animâ, II. iv. p. 416, a. 17.

[b] Ibid. p. 415, b. 2; p. 416, b. 23: ἐπεὶ δ' ἀπὸ τοῦ τέλους ἅπαντα προσαγορεύειν δίκαιον, τέλος δὲ τὸ γεννῆσαι οἷον αὐτό, εἴη ἂν ἡ πρώτη ψυχὴ γεννητικὴ οἷον αὐτό. Also De Generat. Animal. II. i. p. 731, b. 33.

[c] Aristot. De Animâ, II. iv. p. 416, a. 10-18, b. 29.

[d] Aristot. De Sensu et Sensili, i. p. 436, b. 12. He considers sponges to have some sensation (Hist. Animal. I. i. p. 487, b. 9).

[e] Aristot. De Animâ, II. iii. p. 414, b. 2; p. 415, a. 3; III. i. p. 424, b. 22; xiii. p. 435, b. 15.

[f] Ibid. II. xii. p. 424, a. 32-b. 4: διὰ τί ποτε τὰ φυτὰ οὐκ αἰσθάνεται, ἔχοντά τι μόριον ψυχικὸν καὶ πάσχοντά τι ὑπὸ τῶν ἁπτῶν; καὶ γὰρ ψύχεται καὶ θερμαίνεται· αἴτιον γὰρ τὸ μὴ ἔχειν μεσότητα, μηδὲ τοιαύτην ἀρχὴν οἵαν τὰ εἴδη δέχεσθαι τῶν αἰσθητῶν, ἀλλὰ πάσχειν μετὰ τῆς ὕλης.

Themistius ad. loc. p. 144, ed. Spengel: πάσχει (τὰ φυτά) συνεισιούσης τῆς ὕλης τοῦ ποιοῦντος, &c.

the wax being merely potential and undefined, until the signet comes to convert it into something actual and definite;[a] so the percipient faculty in man is impressed by the substances in nature, not according to the matter of each but, according to the qualitative form of each. Such passive receptivity is the first and lowest form of sensation,[b] not having any magnitude in itself, but residing in bodily organs which have magnitude, and separable from them only by logical abstraction. It is a potentiality, correlating with, and in due proportion to, the exterior *percipibile*, which, when acting upon it, brings it into full actuality. The actuality of both (*percipiens* and *perceptum*) is one and the same, and cannot be disjoined in fact, though the potentialities of the two are distinct yet correlative; the *percipiens* is not like the *percipibile* originally, but becomes like it by being thus actualized.[c]

The sentient soul is communicated by the male parent in the act of generation,[d] and is complete from the moment of birth, not requiring a process of teaching after birth; the sentient subject becomes at once and instantly, in regard to sense, on a level with one that has attained a certain actuality of cognition, but is not at the moment reflecting upon the *cognitum*. Potentiality and Actuality are in fact distinguishable into lower and higher degrees; the Potential that has been actualized in a first or lower stage, is still a Potential relatively to higher stages of Actuality.[e] The Potential may be acted upon in two opposite ways; either by deadening and extinguishing it, or by developing and carrying it forward to realization. The sentient soul, when asleep or inert, requires a cause to stimulate it into actual seeing or hearing; the noëtic or cognizant soul, under like circumstances, must also be stimulated into actual meditation on its *cognitum*. But there is this difference between the two. The sentient soul communes with particulars; the noëtic soul with

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[a] Aristot. De Animâ, II. xii. p. 424, a. 19.

[b] Ibid. a. 24: *αἰσθητήριον δὲ πρῶτον ἐν ᾧ ἡ τοιαύτη δύναμις*, &c.—III. xii. p. 434, a. 29.

[c] Ibid. III. ii. p. 425, b. 25: *ἡ δὲ τοῦ αἰσθητοῦ ἐνέργεια καὶ τῆς αἰσθήσεως ἡ αὐτὴ μέν ἐστι καὶ μία, τὸ δ' εἶναι οὐ ταὐτὸν αὐταῖς.*—II. v. p. 418, a. 3: *τὸ δ' αἰσθητικὸν δυνάμει ἐστὶν οἷον τὸ αἰσθητὸν ἤδη ἐντελεχείᾳ,—πάσχει μὲν οὖν οὐχ ὅμοιον ὄν, πεπονθὸς δ' ὡμοίωται καὶ ἔστιν οἷον ἐκεῖνο.* Also p. 417, a. 7, 14, 20.

There were conflicting doctrines current in Aristotle's time: some said that, for an agent to act upon a patient, there must be *likeness* between the two; others said that there must be *unlikeness*. Aristotle dissents from both, and adopts a sort of intermediate doctrine.

[d] Aristot. De Gener. Animal. II. v. p. 741, a. 13, p. 7; De Animâ, II. v. p. 417, b. 17.

[e] Aristot. De Animâ, II. v. p. 417, b. 18-32. See above, p. 457, note [a].

The extent of Potentiality, or the partial Actuality, which Aristotle claims for the sentient soul even at birth, deserves to be kept in mind; we shall contrast it presently with what he says about the Νοῦς.

universals. The sentient soul derives its stimulus from without, and from some of the individual objects, tangible, visible, or audible; but the noëtic soul is put into action by the abstract and universal, which is in a certain sense *within* the soul itself; so that a man can at any time meditate on what he pleases, but he cannot see or hear what he pleases, or anything except such visible or audible objects as are at hand.[a]

We have already remarked, that in many animals the sentient soul is little developed; being confined in some to the sense of touch (which can never be wanting),[b] and in others to touch and taste. But even this minimum of sense—though small, if compared with the variety of senses in man—is a prodigious step in advance of plants; it comprises a certain cognition, and within its own sphere it is always critical, comparing, discriminative.[c] The sentient soul possesses this discriminative faculty in common with the noëtic soul or Intelligence, though applied to different objects and purposes; and possesses such faculty, because it is itself a mean or middle term between the two sensible extremes of which it takes cognizance,—hot and cold, hard and soft, wet and dry, white and black, acute and grave, bitter and sweet, light and darkness, visible and invisible, tangible and intangible, &c. We feel no sensation at all when the object touched is exactly of the same temperature with ourselves, neither hotter nor colder; the sentient soul, being a mean between the two extremes, is stimulated to assimilate itself for the time to either of them, according as it is acted upon from without. It thus makes comparison of each with the other, and of both with its own mean.[d] Lastly, the sentient faculty in the soul is really one and indivisible, though distinguishable logically or by abstraction into different genera and species.[e] Of that faculty the central physical organ is the heart, which contains the congenital or animal spirit. The Aristotelian psychology is here remarkable, affirming as it does the essential relativity of all

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[a] Aristot. De Animâ, II. v. p. 417, b. 22: *αἴτιον δὲ ὅτι τῶν καθ' ἕκαστον ἡ κατ' ἐνέργειαν αἴσθησις, ἡ δ' ἐπιστήμη τῶν καθόλου· ταῦτα δ' ἐν αὐτῇ πώς ἐστι τῇ ψυχῇ.* III. iii. p. 427, b. 18.

[b] Ibid. III. xii. p. 434, b. 23: *φανερὸν ὅτι οὐχ οἷόν τε ἄνευ ἁφῆς εἶναι ζῷον.*

[c] Ibid. ix. p. 432, a. 16: *τῷ κριτικῷ ὃ διανοίας ἔργον ἐστὶ καὶ αἰσθήσεως.*—III. iii. p. 427, a. 20; p. 426, b. 10-15. De Generat. Animal. I. xxiii. p. 731, a. 30-b. 5; De Somno et Vigil. i. p. 458, b. 2. The sentient faculty is called *δύναμιν σύμφυτον κριτικήν* in Analyt. Poster. II. xix. p. 99, b. 35.

[d] Aristot. De Animâ, II. x. p. 422, a. 20; ix. p. 421, b. 4-11; xi. p. 424, a. 5: *καὶ διὰ τοῦτο κρίνει τὰ αἰσθητά—τὸ γὰρ μέσον κριτικόν.* III. vii. p. 431, a. 10: *ἔστι τὸ ἥδεσθαι καὶ λυπεῖσθαι τὸ ἐνεργεῖν τῇ αἰσθητικῇ μεσότητι πρὸς τὸ ἀγαθὸν ἢ κακόν, ᾗ τοιαῦτα.* III. xiii. p. 435, a. 21.

He remarks that plants have no similar *μεσότης*—II. xii. p. 424, b. 1.

[e] Aristot. De Sensu et Sensili, vii. p. 449, a. 8, 17. De Motu Animal. x. p. 703, a. 15. De Somno et Vigil. ii. p. 455, a. 15, 21, 35; p. 456, a. 5. De Juventute et Senect. p. 467, b. 27; p. 469, a. 4-12.

phenomena of sense to the appreciative condition of the sentient; as well as the constant implication of intellectual and discriminative comparison among them.

All the objects generating sensible perception, are magnitudes.[a] Some perceptions are peculiar to one sense alone, as colour to the eye, &c. Upon these we never make mistakes directly; in other words, we always judge rightly what is the colour or what is the sound, though we are often deceived in judging what the thing coloured is, or where the sonorous object is.[b] There are, however, some perceivables not peculiar to any one sense alone, but appreciable by two or more; though chiefly and best by the sense of vision; such are motion, rest, number, figure, magnitude. Here the appreciation becomes less accurate, yet it is still made directly by sense.[c] But there are yet other matters that, though not directly affecting sense, are perceived indirectly, or by way of accompaniment to what is directly perceived. Thus we see a white object; nothing else affecting our sense accept its whiteness. Beyond this, however, we judge and declare, that the object so seen is the son of Kleon. This is a judgment obtained indirectly, or by way of accompaniment; by *accident*, so to speak, inasmuch as the same does not accompany all sensations of white. It is here that we are most liable to error.[d]

Among the five senses, Aristotle distinguishes two as operating by direct contact between subject and object (touch, taste); three as operating through an external intervening medium (vision, smell, taste). He begins with Vision, which he regards as possessing most completely the nature and characteristics of a sense.[e] The direct and proper object of vision is colour. Now colour operates upon the eye not immediately (for, if the coloured object be placed in contact with the eye, there will be no vision), but by causing movements or perturbations in the external intervening medium, air or water, which affect the sense through an appropriate agency of their own.[f] This

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[a] Aristot. De Sensu et Sensili, vii. p. 449, a. 20: *τὸ αἰσθητὸν πᾶν ἐστὶ μέγεθος.*

[b] Aristot. De Animâ, II. vi. p. 418, a. 10-16.

[c] Aristot. De Sensu et Sensili, i. p. 437, a. 8; iv. p. 442, b. 4-12. He says in this last passage, that the common perceivables are appreciable *at least by both sight and touch*—if not by all the senses.

[d] Aristot. De Animâ, II. vi. p. 418, a. 7-25: *λέγεται δὲ τὸ αἰσθητὸν τριχῶς, ὧν δύο μὲν καθ' αὑτά φαμεν αἰσθάνεσθαι, τὸ δὲ ἓν κατὰ συμβεβηκός.* Also, III. i. p. 425, b. 24; iii. p. 428, b. 18-25.

[e] Aristot. De Animâ, III. iii. p. 429, a. 2: *ἡ ὄψις μάλιστα αἴσθησίς ἐστιν.* Also Metaphysica, A. init.

[f] Aristot. De Animâ, II. vii. p. 419, a. 12, 14, 19; Aristot. De Sensu et Sensili, iii. p. 440, a. 18: *ὥστ' εὐθὺς κρεῖττον φάναι, τῷ κινεῖσθαι τὸ μεταξὺ τῆς αἰσθήσεως ὑπὸ τοῦ αἰσθητοῦ γίνεσθαι τὴν αἴσθησιν, ἁφῇ καὶ μὴ ταῖς ἀποῤῥοίαις.*—Ib. ii. p. 438, b. 3: *εἴτε φῶς εἴτ' ἀὴρ ἐστι τὸ μεταξὺ τοῦ*

agency is, according to Aristotle, the Diaphanous or Transparent. When actual or in energy, the transparent is called light; when potential or in capacity only, it is called darkness. The eye is of watery structure, apt for receiving these impressions.[a] It is the presence either of fire, or of something analogous to the celestial body, that calls forth the diaphanous from the state of potentiality into that of actuality or light; in which latter condition it is stimulated by colour. The diaphanous, whether as light or as darkness, is a peculiar nature or accompaniment, not substantive in itself, but inherent chiefly in the First or Celestial Body, yet also in air, water, glass, precious stones, and in all bodies to a greater or less degree.[b] The diaphanous passes at once and simultaneously, in one place as well as in another, from potentiality to actuality —from darkness to light. Light does not take time to travel from one place to another, as sound and smell do.[c] The diaphanous is not a body, nor effluvium from a body, nor any one of the elements: it is of an adjective character—a certain agency or attribute pervading or belonging to bodies, along with their extension.[d] Colour marks and defines the surface of the body *quâ* diaphanous, as figure defines it *quâ* extended. Colour makes the diaphanous itself visible, and its own varieties visible through the diaphanous. Air and water are transparent throughout, though with an ill-defined superficial colour. White and black, as colours in solid bodies, correspond to the condition of light or darkness in air. There are some luminous objects visible in the dark, as fire, fungous matter, eyes, and scales of fish, &c., though they have no appropriate colour.[e] There are

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ὁρωμένου καὶ τοῦ ὄμματος, ἡ διὰ τούτου κίνησίς ἐστιν ἡ ποιοῦσα τὸ ὁρᾶν.

[a] Aristot. De Animâ, II. vii. p. 419, a. 9: τοῦτο γὰρ ἦν αὐτῷ τὸ χρώματι εἶναι, τὸ κινητικῷ εἶναι τοῦ κατ' ἐνέργειαν διαφανοῦς· ἡ δ' ἐντελέχεια τοῦ διαφανοῦς φῶς ἐστίν.—Ib. p. 418, 11-17: ὅταν ᾖ ἐντελεχείᾳ διαφανὲς ὑπὸ πυρὸς ἢ τοιούτου οἷον τὸ ἄνω σῶμα·—πυρὸς ἢ τοιούτου τινὸς παρουσία ἐν τῷ διαφανεῖ.

[b] Aristot. De Animâ, II. vii. p. 418, b. 4. De Sensu et Sensili, ii. p. 438, a. 14, b. 7; iii. p. 439, a. 21, seq.: ὃ δὲ λέγομεν διαφανές, οὐκ ἔστιν ἴδιον ἀέρος ἢ ὕδατος, οὐδ' ἄλλου τῶν οὕτω λεγομένων σωμάτων, ἀλλά τις ἐστὶ κοινὴ φύσιη καὶ δύναμις, ἣ χωριστὴ μὲν οὐκ ἔστιν, ἐν τούτοις δ' ἐστί, καὶ τοῖς ἄλλοις σώμασιν ἐνυπάρχει, τοῖς μὲν μᾶλλον τοῖς δ' ἧττον.

[c] Aristot. De Sensu et Sensili, vi. p. 446, a. 23, seq., b. 27: τῷ εἶναι γάρ τι φῶς ἐστίν, ἀλλ' οὐ κίνησίς τις. Empedokles affirmed that light travelling from the Sun reached the intervening space before it came to the earth; Aristotle contradicts him.

[d] Aristot. De Animâ, II. vii. p. 418, b. 18: ἔστι δὲ τὸ σκότος στέρησις τῆς τοιαύτης ἕξεως ἐκ διαφανοῦς, ὥστε δῆλον ὅτι καὶ ἡ τούτου παρουσία φῶς ἐστίν.—Aristot. De Sensu et Sensili, iii. p. 439, a. 26: ἡ μὲν οὖν τοῦ φωτὸς φύσις ἐν ἀορίστῳ τῷ διαφανεῖ ἐστίν· τοῦ δ' ἐν τοῖς σώμασι διαφανοῦς τὸ ἔσχατον, ὅτι μὲν εἴη ἄν τι, δῆλον· ὅτι δὲ τοῦτο ἐστὶ τὸ χρῶμα, ἐκ τῶν συμβαινόντων φανερόν.—ἔστι μὲν γὰρ ἐν τῷ τοῦ σώματος πέρατι, ἀλλ' οὔ τι τὸ τοῦ σώματος πέρας, ἀλλὰ τὴν αὐτὴν φύσιν δεῖ νομίζειν, ἥπερ καὶ ἔξω χρωματίζεται, ταύτην καὶ ἐντός.

[e] Aristot. De Animâ, II. vii. p. 419, a. 2-25; Aristot. De Sensu et Sensili, iv. p. 442, a. 20,—seven colours.

seven species or varieties of colours, but all of them proceed from white and black, blended in different proportions, or seen one through another; white and black are the two extremes, the other varieties being intermediate between them.

The same necessity for an intervening medium external to the subject, as in the case of vision, prevails also in the senses of hearing and smell. If the audible or odorous object be placed in contact with its organ of sense, there will be no hearing or smell. Whenever we hear or smell any object, there must be interposed between us and the object a suitable medium that shall be affected first; while the organ of sense will be affected secondarily through that medium. Air is the medium in regard to sound, both air and water in regard to smell; but there seems besides (analogous to the transparent in regard to vision) a special agency called the Trans-Sonant, which pervades air and enables it to transmit sound; and certainly another special agency called the Trans-Olfacient, which pervades both air and water, and enables them to transmit smell.[a] (It seems thus that something like a luminiferous ether—extended, mobile, and permeating bodies, yet still incorporeal in itself—was an hypothesis as old as Aristotle; and one other ether besides, analogous in property and purpose—an odoriferous ether; perhaps a third or soniferous ether, but this is less distinctly specified by Aristotle.)

Sound, according to Aristotle, arises from the shock of two or more solid bodies communicated to the air. It implies local movement in one at least of those bodies. Many soft bodies are incapable of making sound; those best suited for it are such as metals, hard in structure, smooth in surface, hollow in shape. The blow must be smart and quick, otherwise the air slips away and dissipates itself before the sound can be communicated to it.[b] Sound is communicated through the air to the organ of hearing; the air is one *continuum* (not composed of adjacent particles with interspaces), and a wave is propagated from it

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[a] Aristot. De Animâ, II. vii. p. 419, a. 25-35; De Sensu et Sensili, v. p. 442, b. 30; Themistius ad Aristot. De Animâ, II. vii., viii., p. 115, Spengel. Of the three names, *τὸ διαφανές—τὸ διηχές—τὸ δίοσμον*, the last two are not distinctly stated by Aristotle, but are said to have been first applied by Theophrastus after him. See the notes of Trendelenburg and Torstrick; the latter supposes Themistius to have had before him a fuller and better text of Aristotle than that which we now possess, which seems corrupt. In our present text, the transparent as well as the trans-olfacient ether are clearly indicated, the trans-sonant not clearly.

[b] Aristot. De Animâ, II., viii., p. 419, b. 4 seq. He calls air *ψαθυρός, εὔθρυπτος* (p. 420, a. 1-8),—*εὐδιαίρετος, εὐόλισθος* (Themistius, pp. 116, 117, Sp.)—"quod facilé diffluit" (Trendelenburg, Comm. p. 384). He says that for sonorous purposes air ought to be *ἀθροῦν*—compact or dense: sound reverberates best from metals with smooth surface, p. 420, a. 25.

to the internal ear, which contains some air enclosed in the sinuous ducts within the membrane of the tympanum, congenitally attached to the organ itself, and endued with a certain animation.[a] This internal air within the ear, excited by the motion propagated from the external ear, causes hearing. The ear is enabled to appreciate accurately the movements of the external air, because it has itself little or no movement within. We cannot hear with any other part of the body; because it is only in the ear that nature has given us this stock of internal air. If water gets into the ear, we cannot hear at all; because the wave generated in the air without, cannot propagate itself within. Nor can we hear, if the membrane of the ear be disordered; any more than we can see, when the membrane of the eye is disordered.[b]

Voice is a kind of sound peculiar to animated beings; yet not belonging to all of them, but only to those that inspire the air. Nature employs respiration for two purposes: the first, indispensable to animal life,—that of cooling and tempering the excessive heat of the heart and its adjacent parts; the second, not indispensable to life, yet most valuable to the higher faculties of man,—significant speech. The organ of respiration is the larynx; a man cannot speak either when inspiring or expiring, but only when retaining and using the breath within. The soul in those parts, when guided by some phantasm or thought, impels the air within against the walls of the trachea, and this shock causes vocal sounds.[c]

Aristotle seems to have been tolerably satisfied with the above explanation of sight and hearing; for, in approaching the sense of Smell with the olfacients, he begins by saying that it is less definable and explicable. Among the five senses, smell stands intermediate between the two (taste and touch) that operate by

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[a] Aristot. De Animâ, II. viii. p. 419, b. 34 seq.: *οὗτος δ' (ὁ ἀὴρ) ἐστὶν ὁ ποιῶν ἀκούειν, ὅταν κινηθῇ συνεχὴς καὶ εἷς·—ψοφητικὸν μὲν οὖν τὸ κινητικὸν ἑνὸς ἀέρος συνεχείᾳ μέχρις ἀκοῆς. ἀκοῇ δὲ συμφυὴς ἀήρ· διὰ δὲ τὸ ἐν ἀέρι εἶναι, κινουμένου τοῦ ἔξω τὸ εἴσω κινεῖ. διόπερ οὐ πάντῃ τὸ ζῷον ἀκούει, οὐδὲ πάντῃ διέρχεται ὁ ἀήρ· οὐ γὰρ πάντῃ ἔχει ἀέρα τὸ κινησόμενον μέρος καὶ ἔμψυχον.—διὰ τὰς ἕλικας* (p. 420, a. 13).

The text of this passage is not satisfactory. It has been much criticised as well as amended by Torstrick; see his Comment. p. 148 seq. I cannot approve his alteration of *ἔμψυχον* into *ἔμψοφον*.

[b] Aristot. De Animâ, II. viii. p. 420, a. 9: *ὁ δ' ἐν τοῖς ὠσὶν ἐγκατῳκοδόμηται πρὸς τὸ ἀκίνητος εἶναι, ὅπως ἀκριβῶς αἰσθάνηται πάσας τὰς διαφορὰς τῆς κινήσεως.* —p. 420, a. 14. *οὐδ' (ἀκούομεν) ἂν ἡ μήνιγξ κάμῃ, ὥσπερ τὸ ἐπὶ τῇ κόρῃ δέρμα ὅταν κάμῃ.*

[c] Aristot. De Animâ, II. viii. p. 420, b. 5-p. 421, a. 6. *ὥστε ἡ πληγὴ τοῦ ἀναπνεομένου ἀέρος ὑπὸ τῆς ἐν τούτοις τοῖς μορίοις ψυχῆς πρὸς τὴν καλουμένην ἀρτηρίαν φωνή ἐστιν. οὐ γὰρ πᾶς ζῴου ψόφος φωνή, καθάπερ εἴπομεν (ἔστι γὰρ καὶ τῇ γλώττῃ ψοφεῖν καὶ ὡς οἱ βήττοντες (ἀλλὰ δεῖ ἔμψυχόν τε εἶναι τὸ τύπτον καὶ μετὰ φαντασίας τινός· σημαντικὸς γὰρ δή τις ψόφος ἐστὶν ἡ φωνή· καὶ οὐ τοῦ ἀναπνεομένου ἀέρος, ὥσπερ ἡ βήξ, ἀλλὰ τούτῳ τύπτει τὸν ἐν τῇ ἀρτηρίᾳ πρὸς αὐτήν.*

direct contact, and the other two (sight and hearing) that operate through an external medium. Man is below other animals in this sense; he discriminates little in smells except the pleasurable and the painful.[a] His taste, though analogous in many points to smell, is far more accurate and discriminating, because taste is a variety of touch; and in respect to touch, man is the most discriminating of all animals. Hence his great superiority to them in practical wisdom. Indeed the marked difference of intelligence between one man and another, turns mainly upon the organ of touch: men of hard flesh (or skin) are by nature dull in intelligence, men of soft flesh are apt and clever.[b] The classifying names of different smells are borrowed from the names of the analogous tastes to which they are analogous—sweet, bitter, tart, dry, sharp, smooth, &c.[c] Smells take effect through air as well as through water; by means of a peculiar agency or accompaniment (mentioned above, called the Trans-Olfacient) pervading both one and the other. It is peculiar to man that he cannot smell except when inhaling air in the act of inspiration; any one may settle this for himself by making the trial.[d] But fishes and other aquatic animals, which never inhale air, can smell in the water; and this proves that the trans-olfacient agency is operative to transmit odours not less in water than in air.[e] We know that the sense of smell in these aquatic animals is the same as it is in man, because the same strong odours that are destructive to man are also destructive to them.[f] Smell is the parallel, and in a certain sense the antithesis of taste; smell is of the dry, taste is of the moist: the olfactory matter is a juicy or sapid dryness, extracted or washed out from both air and water by the trans-olfacient agency, and acting on the sensory potentialities of the nostrils.[g]

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[a] Aristot. De Animâ, II. ix. p. 421, a. 7. De Sensu et Sensili, v. p. 445, a. 6; iv. p. 441, a. 1. De Partibus Animal. II. xii. p. 656, a. 31; p. 657, a. 9.

[b] Aristot. De Animâ, II. ix. p. 421, a. 21: *κατὰ δὲ τὴν ἁφὴν πολλῷ τῶν ἄλλων ζῴων διαφερόντως ἀκριβοῖ (ὁ ἄνθρωπος). διὸ καὶ φρονιμώτατόν ἐστι τῶν ζῴων. σημεῖον δὲ τὸ καὶ ἐν τῷ γένει τῶν ἀνθρώπων παρὰ τὸ αἰσθητήριον τοῦτο εἶναι εὐφυεῖς καὶ ἀφυεῖς, παρ' ἄλλο δὲ μηδέν· οἱ μὲν γὰρ σκληρόσαρκοι ἀφυεῖς τὴν διάνοιαν, οἱ δὲ μαλακόσαρκοι εὐφυεῖς.*

[c] Ibid. a. 26.

[d] Ibid. b. 9-19. *τὸ ἄνευ τοῦ ἀναπνεῖν μὴ αἰσθάνεσθαι ἴδιον ἐπὶ τῶν ἀνθρώπων· δῆλον δὲ πειρωμένοις.* He seems to think that this is not true of any animal other than man.

[e] Aristot. De Sensu et Sensili, v. p. 443, a. 3-31; p. 444, b. 9.

[f] Aristot. De Animâ, II. ix. p. 421, b. 23. He instances brimstone, *ἄσφαλτος*, &c.

[g] This is difficult to understand, but it seems to be what Aristotle here means. —De Animâ, II. ix. p. 422, a. 6: *ἔστι δ' ἡ ὀσμὴ τοῦ ξηροῦ, ὥσπερ ὁ χυμὸς τοῦ ὑγροῦ· τὸ δ' ὀσφραντικὸν αἰσθητήριον δυνάμει τοιοῦτον.*—De Sensu et Sensili, v. p. 443, a. 1-9: *ἔστι δ' ὀσφραντὸν οὐχ ᾗ διαφανές, ἀλλ' ᾗ πλυντικὸν ἢ ῥυπτικὸν ἐγχύμου ξηρότητος—ἡ ἐν ὑγρῷ τοῦ ἐγχύμου ξηροῦ φύσις ὀσμή, καὶ ὀσφραντὸν τὸ τοιοῦτον· ὅτι δ' ἀπὸ χυμοῦ ἐστὶ τὸ πάθος, δῆλον ἐκ τῶν ἐχόντων καὶ μὴ ἐχόντων ὀσμήν*, &c. Also p. 443, b. 3-7.

In the treatise De Sensu et Sensili,

This olfactory inhalation is warm as well as dry. Hence it is light, and rises easily to the brain, the moisture and coldness of which it contributes to temper; this is a very salutary process, for the brain is the wettest and coldest part of the body, requiring warm and dry influences as a corrective. It is with a view to this correction that Nature has placed the olfactory organ in such close proximity to the brain.[a] There are two kinds of olfactory impressions. One of them is akin to the sense of taste —odour and savour going together—an affection (to a great degree) of the nutritive soul; so that the same odour is agreeable when we are hungry, disagreeable when our hunger is fully satisfied. This first kind of impression is common to men with other animals; but there is a second, peculiar to man, and disconnected from the sense of taste, viz., the scent of flowers, unguents, &c., which are agreeable or disagreeable constantly and *per se*.[b] Nature has assigned this second kind of odours as a privilege to man, because his brain, being so large and moist, requires to be tempered by an additional stock of drying and warming olfactory influence.

Taste is a variety of touch, and belongs to the lower or nutritive soul, as a guide to the animal in seeking or avoiding different sorts of food. The object of taste is essentially liquid, often strained and extracted from dry food by warmth and moisture. The primary manifestation of this sensory phenomenon is the contrast of drinkable and undrinkable.[c] The organ of taste, the tongue, is a mean between dryness and moisture; when either of these is in excess, the organ is disordered. Among the varieties of taste, there are two fundamental contraries (as in colour, sound, and the objects of the other senses except touch) from which the other contrasts are derived. These fundamentals in taste are sweet and bitter; corresponding to white and black, acute and grave, in colours and sounds. The sense of taste is potentially sweet

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there is one passage (ii. p. 438, b. 24), wherein Aristotle affirms that smell is *καπνώδης ἀναθυμίασις, ἐκ πυρός*; but we also find a subsequent passage (v. p. 443, a. 21, seq.) where he cites that same doctrine as the opinion of others, but distinctly refutes it.

[a] Aristot. De Sensu et Sensili, v. p. 444, a. 10, 22, 24: *ἡ γὰρ τῆς ὀσμῆς δύναμις θερμὴ τὴν φύσιν ἐστίν.*

[b] Ibid. p. 443, b. 17; p. 444, a. 6, 15, 28: *Ἴδιον δὲ τῆς τοῦ ἀνθρώπου φύσεώς ἐστι τὸ τῆς ὀσμῆς τῆς τοιαύτης γένος διὰ τὸ πλεῖστον ἐγκέφαλον καὶ ὑγρότατον ἔχειν τῶν ζῴων ὡς κατὰ μέγεθος.*

Plato also reckons the pleasures of smell among the pure and admissible pleasures (Philebus, p. 51, E; Timæus, p. 65, A., p. 67, A.).

[c] Aristot. De Animâ, II. x. p. 422, a. 30-33. De Sensu et Sensili, i. p. 436, b. 15; iv. p. 441, b. 17: *διὰ τοῦ ξηροῦ καὶ γεώδους διηθοῦσα (ἡ φύσις) καὶ κινοῦσα τῷ θερμῷ ποιόν τι τὸ ὑγρὸν παρασκευάζει. καὶ ἔστι ταῦτο χυμὸς τὸ γιγνόμενον ὑπὸ τοῦ εἰρημένου ξηροῦ πάθος ἐν τῷ ὑγρῷ.*—Ib. b. 24: *οὐ παντὸς ξηροῦ ἀλλὰ τοῦ τροφίμου.*

or bitter; the gustable object is what makes it sweet or bitter in actuality.[a]

The sense of touch, in which man surpasses all other animals, differs from the other senses by not having any two fundamental contraries giving origin to the rest, but by having various contraries alike fundamental. It is thus hardly one sense, but an aggregate of several senses. It appreciates the elementary differences of body *quâ* body—hot, cold, dry, moist, hard, soft, &c. It is a mean between each of these two extremes; being potentially either one of them, and capable of being made to assimilate itself actually to either.[b] In this sense, the tangible object operates when in contact with the skin; and, as has been already said, much of the superiority of man depends upon his superior fineness and delicacy of skin.[c] Still Aristotle remarks that the true organ of touch is not the skin or flesh, but something interior to the flesh. This last serves only as a peculiar medium. The fact that the sensation arises when the object touches our skin, does not prove that the skin is the true organ; for, if there existed a thin exterior membrane surrounding our bodies, we should still feel the same sensation. Moreover, the body is not in real contact with our skin, though it appears to be so; there is a thin film of air between the two, though we do not perceive it; just as, when we touch an object under water, there is a film of water interposed between, as is seen by the wetness of the finger.[d] The skin is, therefore, not the true organ of touch, but a medium between the object and the organ; and this sense does in reality agree with the other senses in having a certain medium interposed between object and organ. But there is this difference: in touch the medium is close to and a part of ourselves; in sight and hearing it is exterior to ourselves, and may extend to some distance. In sight and hearing the object does not affect us directly; it affects the external medium, which again affects us. But in touch the object affects, at the same time and by the same influence, both the medium and the interior organ; like a spear that, with the same thrust, pierces the warrior's shield and wounds the warrior himself.[e]

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[a] Aristot. De Animâ, II. x. p. 422, b. 5-16; II. xi. p. 422, b. 23: πᾶσά τε γὰρ αἴσθησις μιᾶς ἐναντιώσεως εἶναι δοκεῖ, &c.

[b] Ibid. xi. p. 422, b. 17 seq.

[c] Aristot. Histor. Animal. I. xv. p. 494, b. 17. Man is λεπτοδερμότατος τῶν ζῴων (Aristot. De Partib. Animal. ii. p. 657, b. 2), and has the tongue also looser and softer than any of them, most fit for variety of touch (p. 660, a. 20) as well as for articulate speech.

[d] Aristot. De Animâ, II. xi. p. 423, a. 25-32.

[e] Ibid. p. 423, b. 12-17: διαφέρει τὸ ἁπτὸν τῶν ὁρατῶν καὶ τῶν ψοφητικῶν ὅτι ἐκείνων μὲν αἰσθανόμεθα τῷ τὸ μεταξὺ ποιεῖν τι ἡμᾶς, τῶν δὲ ἁπτῶν οὐχ ὑπὸ τοῦ μεταξὺ ἀλλ' ἅμα τῷ μεταξύ, ὥσπερ ὁ δι' ἀσπίδος

Apparently, therefore, the true organ of touch is something interior, and skin and flesh is an interposed medium.[a] But what this interior organ is, Aristotle does not more particularly declare. He merely states it to be in close and intimate communication with the great central focus and principle of all sensation—the heart;[b] more closely connected with the heart (he appears to think) than any of the other organs of sense, though all of them are so connected more or less closely.

Having gone through the five senses *seriatim*, Aristotle offers various reasons to prove that there neither are, nor can be, more than five; and then discusses some complicated phenomena of sense. We perceive *that* we see or hear;[c] do we perceive this by sight or by hearing? and if not, by what other faculty?[d] Aristotle replies by saying that the act of sense is one and the same, but that it may be looked at in two different points of view. We see a coloured object; we hear a sound: in each case the act of sense is one; the energy or actuality of the *visum*, and *videns*, of the *sonans* and *audiens*, is implicated and indivisible. But the potentiality of the one is quite distinct from the potentiality of the other, and may be considered as well as named apart.[e] When we say: I perceive *that* I see—we look at the same act of vision from the side of the *videns;* the *visum* being put out of sight as the unnoticed correlate. This is a mental fact distinct from, though following upon, the act of vision itself. Aristotle refers it rather to that general sentient soul or faculty, of which the five senses are partial and separate manifestations, than to the sense of vision itself.[f] He thus considers what would now be termed *consciousness of a sensation*, as being merely the subjective view of the sensation, distinguished by abstraction from the objective.

πληγείς· οὐ γὰρ ἡ ἀσπὶς πληγεῖσα ἐπάταξεν, ἀλλ' ἅμ' ἄμφω συνέβη πληγῆναι.

This analogy of the warrior pierced at the same time with his shield illustrates Aristotle's view of the eighth Category—*Habere:* of which he gives ὅπλισται as the example. He considers a man's clothes and defensive weapons as standing in a peculiar relation to him like a personal appurtenance and almost as a part of himself. It is under this point of view that he erects *Habere* into a distinct Category.

[a] Aristot. De Animâ, II. xi. p. 423, b. 22-26: ᾗ καὶ δῆλον ὅτι ἐντὸς τὸ τοῦ ἁπτοῦ αἰσθητικόν.—τὸ μεταξὺ τοῦ ἁπτικοῦ ἡ σάρξ.

[b] Aristot. De Partibus Animal. II. x. p. 656, a. 30; De Vitâ et Morte, iii. p. 469, a. 12: De Somno et Vigil. ii. p. 455, a. 23; De Sensu et Sensili, ii. p. 439, a. 2.

[c] In modern psychology the language would be—"We *are conscious* that we see or hear." But Sir William Hamilton has remarked that the word Consciousness has no equivalent usually or familiarly employed in the Greek psychology.

[d] Aristot. De Animâ, III. ii. p. 425, b. 14.

[e] Ibid. b. 26; p. 426, a. 16-19.

[f] Aristot. De Somno et Vigil. ii. p. 455, a. 12-17; De Animâ, III. ii. with Torstrick's note, p. 166, and the exposition of Alexander of Aphrodisias therein cited. These two passages of Aristotle are to a certain extent different, yet not contradictory, though Torstrick supposes them to be so.

It is the same general sentient faculty, though diversified and logically distinguishable in its manifestations, that enables us to conceive many sensations as combined into one; and to compare or discriminate sensations belonging to different senses.[a]

White and sweet are perceived by two distinct senses, and at two distinct moments of time; but they must be compared and discriminated by one and the same sentient or cogitant act, and at one moment of time.[b] This mental act, though in itself indivisible, as yet two aspects, and is thus in a certain sense divisible; just as a point taken in the middle of a line, while indivisible in itself, may be looked upon as the closing terminus of one-half of the line, and as the commencing terminus of the other half. The comparison of two different sensations or thoughts is thus one and the same mental fact, with two distinguishable aspects.[c]

Aristotle devotes a chapter to the enquiry: whether we can perceive two distinct sensations at once (*i.e.* in one and the same moment of time). He decides that we cannot; that the sentient soul or faculty is one and indivisible, and can only have a single energy or actuality at once.[d] If two causes of sensation are operative together, and one of them be much superior in force, it will render us insensible to the other. He remarks that, when we are pre-occupied with loud noise, or with deep reflection, or with intense fright, visual objects will often pass by us unseen and unnoticed.[e] Often the two simultaneous sensations will combine or blend into one compound, so that we shall feel neither of them purely or separately.[f] One single act of sensational energy may however have a double aspect; as the same individual object may be at once white and sweet, though its whiteness and its sweetness are logically separable.[g]

To the sentient soul, even in its lowest manifestations, belong the feelings of pleasure and pain, appetite and aversion.[h] The

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[a] Aristot. De Sensu et Sensili, vii. p. 449, a. 8-20.

[b] Aristot. De Animâ, III. ii. p. 426, b. 17-29: *οὔτε δὴ κεχωρισμένοις ἐνδέχεται κρίνειν ὅτι ἕτερον τὸ γλυκὺ τοῦ λευκοῦ, ἀλλὰ δεῖ ἑνί τινι ἄμφω δῆλα εἶναι.—δεῖ δὲ τὸ ἓν λέγειν ὅτι ἕτερον· ἕτερον γὰρ τὸ γλυκὺ τοῦ λευκοῦ.—ἀχώριστον καὶ ἐν ἀχωρίστῳ χρόνῳ.* III. vii. p. 431, a. 20.

[c] Aristot. De Animâ, III. ii. p. 427, a. 10-14: *ὥσπερ ἣν καλοῦσί τινες στιγμήν, ᾗ μιὰ καὶ ᾗ δύο, ταύτῃ καὶ ἀδιαίρετος καὶ διαιρέτη· ᾗ μὲν οὖν ἀδιαίρετον, ἓν τὸ κρῖνόν ἐστι καὶ ἅμα, ᾗ δὲ διαίρετον ὑπάρχει, οὐχ ἕν· δὶς γὰρ τῷ αὐτῷ χρῆται σημείῳ ἅμα.*

It is to be remarked that, in explaining this mental process of comparison, Aristotle three several times applies it both to *αἴσθησις* and to *νόησις*, p. 426, b. 22-31; p. 427, a. 9.

[d] Aristot. De Sensu et Sensili, vii. p. 447, a. 12.

[e] Ibid. a. 15.

[f] Ibid. b. 12-20.

[g] Ibid. p. 449, a. 14.

[h] Aristot. De Animâ, II. iii. p. 414, b. 3-16; III. vii. p. 431, a. 9; De Somno et Vigil. i. p. 454, b. 29.

movements connected with these feelings, as with all sensation, begin and close with the central organ—the heart.[a] Upon these are consequent the various passions and emotions; yet not without certain faculties of memory and phantasy accompanying or following the facts of sense.

Aristotle proceeds by gradual steps upward from the Sentient soul to the Noëtic (Cogitant or Intelligent) soul, called in its highest perfection Noûs. While refuting the doctrine of Empedokles, Demokritus, and other philosophers, who considered cogitation or intelligence to be the same as sensible perception, and while insisting upon the distinctness of the two as mental phenomena, he recognizes the important point of analogy between them, that both of them include judgment and comparison;[b] and he describes an intermediate stage called Phantasy or Imagination, forming the transition from the lower of the two to the higher. We have already observed that, in the Aristotelian psychology, the higher functions of the soul presuppose and are built upon the lower as their foundation, though the lower do not necessarily involve the higher. Without nutrition, there is no sense; without sense, there is no phantasy; without phantasy, there is no cogitation or intelligence.[c] The higher psychical phenomena are not identical with the lower, yet neither are they independent thereof; they presuppose the lower as a part of their conditions. Here, and indeed very generally elsewhere, Aristotle has been careful to avoid the fallacy of confounding or identifying the conditions of a phenomenon with the phenomenon itself.[d]

He proceeds to explain Phantasy or the Phantastic department of the soul, with the phantasms that belong to it. It is not sensible perception, nor belief, nor opinion, nor knowledge, nor cogitation. Our dreams, though affections of the sentient soul, are really phantasms in our sleep, when there is no visual sensation; even when awake, we have a phantasm of the sun, as of a disk one foot in diameter, though we *believe* the sun to be larger than the earth.[e] Many of the lower animals have sensible perception without any phantasy: even those among

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[a] Aristot. De Partibus Animalium, III. iv. p. 666, a. 12.

[b] Aristot. De Animâ, III. iii. p. 427, a. 20.

[c] Ibid. b. 14: *φαντασία γὰρ ἕτερον καὶ αἰσθήσεως καὶ διανοίας.*—Ib. vii. p. 431, a. 16: *οὐδέποτε νοεῖ ἄνευ φαντάσματος ἡ ψυχή.*—De Memoriâ et Reminiscent. i. p. 449, b. 31: *νοεῖν οὐκ ἔστιν ἄνευ φαντάσματος.*

[d] Mill's System of Logic, Book V. ch. 3, s. 8.

[e] Aristot. De Animâ, III. iii. p. 428, a. 5, b. 3; De Somno et Vig. ii. p. 456, a. 24: *κινοῦνται δ' ἔνιοι καθεύδοντες καὶ ποιοῦσι πολλὰ ἐγρηγορικά, οὐ μέντοι ἄνευ φαντάσματος καὶ αἰσθήσεώς τινος· τὸ γὰρ ἐνύπνιόν ἐστιν αἴσθημα τρόπον τινά.*—Ibid. i. p. 454, b. 10.

them that have phantasy have no opinion; for opinion implies faith, persuasion, and some rational explanation of that persuasion, to none of which does any animal attain.[a] Phantasy is an internal movement of the animated being (body and soul in one); belonging to the sentient soul, not to the cogitant or intelligent; not identical with the movement of sense, but continued from or produced by that, and by that alone; accordingly, similar to the movement of sense and relating to the same matters.[b] Since our sensible perceptions may be either true or false, so also may be our phantasms. And, since these phantasms are not only like our sensations, but remain standing in the soul long after the objects of sense have passed away, they are to a great degree the determining causes both of action and emotion. They are such habitually to animals, who are destitute of Noûs; and often even to intelligent men, if the Noûs be overclouded by disease or drunkenness.[c]

In the chapter now before us, Aristotle is careful to discriminate phantasy from several other psychological phenomena wherewith it is liable to be confounded. But we remark with some surprise, that neither here, nor in any other part of his general Psychology, does he offer any exposition of Memory, the phenomenon more nearly approaching than any other to phantasy. He supplied the deficiency afterwards by a short but valuable tract on Memory and Reminiscence; wherein he recognizes, and refers to, the more general work on Psychology. Memory bears on the past, as distinguished both from the present and future. Memory and phantasy are in some cases so alike, that we cannot distinguish clearly whether what is in our minds is a remembrance or a phantasm.[d] Both of them belong to the same psychological department—to the central sentient principle, and not to the cogitant or intelligent Noûs. Memory as well as phantasy are continuations, remnants, or secondary consequences, of the primary movements of sense; what in itself is a phantasm, may become an object of remembrance directly and *per se;* matters of cogitation, being included or implicated in phantasms, may also become objects of remembrance, indirectly and by way of accompaniment.[e] We

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[a] Aristot. De Animâ, III. iii. p. 428, a. 10, 22, 25.

[b] Ibid. b. 10-15; De Somniis, i. p. 459, a. 15.

[c] Aristot. De Animâ, III. iii. p. 428, b. 16: *καὶ πολλὰ κατ' αὐτὴν (i.e. κατὰ τὴν φαντασίαν) καὶ ποιεῖν καὶ πάσχειν τὸ ἔχον.*—Ibid. p. 429, a. 4: *καὶ διὰ τὸ ἐμμένειν καὶ ὁμοίας εἶναι (τὰς φαντασίας) ταῖς αἰσθήσεσι, πολλὰ κατ' αὐτὰς πράττει τὰ ζῷα* &c.

[d] Aristot. De Memor. et Remin. i. p. 451, a. 5; p. 449, a. 10.

[e] Ibid. p. 450, a. 22: *τίνος μὲν οὖν τῶν τῆς ψυχῆς ἐστὶν ἡ μνήμη, φανερὸν ὅτι οὗπερ καὶ ἡ φαντασία· καὶ ἔστι μνημονευτὰ καθ' αὑτὰ μὲν ὅσα ἐστὶ φανταστά, κατὰ συμβεβηκὸς δ' ὅσα μὴ ἄνευ φαντασίας.*

can remember our prior acts of cogitation and demonstration; we can remember that, a month ago, we demonstrated the three angles of a triangle to be equal to two right angles; but, as the original demonstration could not be carried on without our having before our mental vision the phantasm of some particular triangle, so neither can the remembrance of the demonstration be made present to us without a similar phantasm.[a] In acts of remembrance we have a conception of past time, and we recognize what is now present to our minds as a copy of what has been formerly present to us, either as perception of sense or as actual cognition; [b] while in phantasms there is no conception of past time, nor any similar recognition, nor any necessary reference to our own past mental states; the phantasm is looked at by itself, and not as a copy. This is the main point of distinction between phantasm and remembrance: [c] what is remembered is a present phantasm assimilated to an impression of the past. Some of the superior animals possess both memory and phantasy. But other animals have neither; their sensations disappear, they have no endurance; while endurance is the basis both of phantasy and memory.[d]

But though some animals have memory, no animal except man has Reminiscence. Herein man surpasses them all.[e] Aristotle draws a marked distinction between the two; between the (memorial) retentive and reviving functions, when working unconsciously and instinctively, and the same two functions, when stimulated and guided by a deliberate purpose of our own —which he calls reminiscence. This last is like a syllogism or course of ratiocinative inference, performable only by minds capable of taking counsel and calculating. He considers memory as a movement proceeding from the centre and organs of sense to the soul, and stamping an impression thereupon; while reminiscence is a counter-movement proceeding from the soul to the organs of sense.[f] In the process of reminiscence, movements of the soul and movements of the body are conjoined,[g]

[a] Aristot. De Memor. et. Rem. i. p. 449, b. 18.

[b] Ibid. b. 22: *ἀεὶ γὰρ ὅταν ἐνεργῇ κατὰ τὸ μνημονεύειν, οὕτως ἐν τῇ ψυχῇ λέγει, ὅτι πρότερον τοῦτο ἤκουσεν ἢ ᾔσθετο ἢ ἐνόησεν.*—Ibid. p. 452, b. 28.

[c] Ibid. p. 450, a. 30; p. 451, a. 15; *τὸ μνημονεύειν, ὡς εἰκόνος οὗ φάντασμα, ἕξις.* Themistius and Aristot. De Memoriâ, p. 240, ed. Spengel.

[d] Aristot. Analyt. Poster. ii. p. 99, b. 36: *μονὴ τοῦ αἰσθήματος.* It may be remarked that in the Topica Aristotle urges a dialectical objection against this or a similar doctrine (Topic. IV. iv. v. p. 125, b. 6-19), and against his own definition cited in the preceding note, where he calls *μνήμη* an *ἕξις*. Compare the first chapter of the Metaphysica.

[e] Aristot. De Memor. et Rem. ii. p. 453, a. 8. He draws the same distinction in Hist. Animal. I. i. p. 488, b. 26.

[f] Aristot. De Animâ, I. iv. p. 408, b. 17. De Memor. et Remin. i. p. 450, a. 30; ii. p. 453, a. 10: *τὸ ἀναμιμνήσκεσθαί ἐστιν οἷον συλλογισμός τις.*

[g] Aristot. De Memor. et Rem. ii. p. 453, a. 14-23.

more or less perturbing and durable according to the temperament of the individual. The process is intentional and deliberate, instigated by the desire to search for and recover some lost phantasm or cognition; its success depends upon the fact that there exists by nature a regular observable order of sequence among the movements of the system, physical as well as psychical. The consequents follow their antecedents either universally, or at least according to customary rules, in the majority of cases.[a]

The consequent is either (1) like its antecedent, wholly or partially; or (2) contrary to it; or (3) has been actually felt in juxtaposition with it. In reminiscence, we endeavour to regain the forgotten consequent by hunting out some antecedent whereupon it is likely to follow; taking our start either from the present moment or from some other known point.[b] We run over many phantasms until we hit upon the true antecedent; the possibility of reminiscence depends upon our having this within our mental reach, among our accessible stock of ideas: if such be not the case, reminiscence is impracticable, and we must learn over again.[c] We are most likely to succeed, if we get upon the track or order wherein events actually occurred; thus, if we are trying to recollect a forgotten verse or sentence, we begin to repeat it from the first word; the same antecedent may indeed call up different consequents at different times, but it will generally call up what has habitually followed it before.[d]

The movements of Memory and of Reminiscence are partly corporeal and partly psychical, just as those of Sensation and Phantasy are. We compare in our remembrance greater and less (either in time or in external magnitudes) through similar internal movements differing from each other in the same proportion, but all on a miniature scale.[e] These internal movements often lead to great discomfort, when a person makes fruitless efforts to recover the forgotten phantasm that he desires; especially with excitable men, who are much disturbed by their own phantasms. They cannot stop the movement once begun;

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[a] Aristot. De Memor. et Rem. ii. p. 451, b. 10: *συμβαίνουσι δ' αἱ ἀναμνήσεις, ἐπειδὴ πέφυκεν ἡ κίνησις ἥδε γενέσθαι μετὰ τήνδε.*

[b] Ibid. b. 18: *διὸ καὶ τὸ ἐφεξῆς θηρεύομεν νοήσαντες ἀπὸ τοῦ νῦν ἢ ἄλλου τινός, καὶ ἀφ' ὁμοίου ἢ ἐναντίου ἢ τοῦ σύνεγγυς.*

About the associative property of Contraries see also De Somno et Vigil. i. p. 453, b. 27.

[c] Aristot. De Memor. et Rem. ii. p. 452, a. 7: *πολλάκις δ' ἤδη μὲν ἀδυνατεῖ ἀναμνησθῆναι, ζητεῖν δὲ δύναται καὶ εὑρίσκει. τοῦτο δὲ γίνεται κινοῦντι πολλά, ἕως ἂν τοιαύτην κινήσῃ κίνησιν, ᾗ ἀκολουθήσει τὸ πρᾶγμα. τὸ γὰρ μεμνῆσθαί ἐστι τὸ ἐνεῖναι δυνάμει την κινοῦσαν· τοῦτο δέ, ὥστ' ἐξ αὐτοῦ καὶ ὧν ἔχει κινήσεων κινηθῆναι, ὥσπερ εἴρηται.*

[d] Ibid. ii. p. 452, a. 2.

[e] Ibid. b. 12: *ἔστι γὰρ ἐν αὐτῇ τὰ ὅμοια σχήματα καὶ κινήσεις.—πάντα γὰρ τὰ ἐντὸς ἐλάττω, ὥσπερ ἀνάλογον καὶ τὰ ἐκτός.*

and, when their sensitive system is soft and flexible, they find that they have unwittingly provoked the bodily movements belonging to anger or fear, or some other painful emotion.[a] These movements, when once provoked, continue in spite of the opposition of the person that experiences them. He brings upon himself the reality of the painful emotion; just as we find that, after we have very frequently pronounced a sentence or sung a song, the internal movements left in our memories are sometimes so strong and so persistent, that they act on our vocal organs even without any volition on our parts, and determine us to sing the song or pronounce the sentence over again in reality.[b] Slow men are usually good in memory, quick men and apt learners are good in reminiscence: the two are seldom found together.[c]

In this account of Memory and Reminiscence, Aristotle displays an acute and penetrating intelligence of the great principles of the Association of Ideas. But these principles are operative not less in memory than in reminiscence: and the exaggerated prominence that he has given to the distinction between the two (determined apparently by a wish to keep the procedure of man apart from that of animals) tends to perplex his description of the associative process. At the same time, his manner of characterizing phantasy, memory, and reminiscence, as being all of them at once corporeal and psychical—involving, like sensation, internal movements of the body as well as phases of the consciousness, sometimes even passing into external movements of the bodily organs without our volition—all this is a striking example of psychological observation, as well as of consistency in following out the doctrine laid down at the commencement of his chief treatise: Soul as the Form implicated with Body as the Matter,—the two being an integral concrete separable only by abstraction.

We come now to the highest and (in Aristotle's opinion) most honourable portion of the soul—the Noûs or noëtic faculty, whereby we cogitate, understand, reason, and believe or opine under the influence of reason.[d] According to the uniform scheme

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[a] Aristot. De Memor. et Rem. ii. p. 453, a. 22: ὁ ἀναμιμνησκόμενος καὶ θηρεύων σωματικόν τι κινεῖ, ἐν ᾧ τὸ πάθος.

[b] Ibid. p. 453, a. 28: ἔοικε τὸ πάθος τοῖς ὀνόμασι καὶ μέλεσι καὶ λόγοις, ὅταν διὰ στόματος γένηταί τι αὐτῶν σφόδρα· πανσαμένοις γὰρ καὶ οὐ βουλομένοις ἐπέρχεται πάλιν ᾄδειν ἢ λέγειν.

[c] Ibid. i. p. 449, b. 7.

[d] Aristot. De Animâ, III. iv. p. 429, a. 10: περὶ δὲ τοῦ μορίου τοῦ τῆς ψυχῆς ᾧ γινώσκει τε ἡ ψυχὴ καὶ φρονεῖ. He himself defines what he means by νοῦς a few lines lower; and he is careful to specify it as ὁ τῆς ψυχῆς νοῦς—ὁ ἄρα καλούμενος τῆς ψυχῆς νοῦς (λέγω δὲ νοῦν, ᾧ διανοεῖται καὶ ὑπολαμβάνει ἡ ψυχή)—a. 22.

In the preceding chapter he expressly discriminates νόησις from ὑπόληψις. This last word ὑπόληψις is the most general

of Aristotle, this highest portion of the soul, though distinct from all the lower, presupposes them all. As the sentient soul presupposes the nutrient, so also the cogitant soul presupposes the nutrient, the sentient, the phantastic, the memorial, and the reminiscent. Aristotle carefully distinguishes the sentient department of the soul from the cogitant, and refutes more than once the doctrine of those philosophers that identified the two. But he is equally careful to maintain the correlation between them, and to exhibit the sentient faculty not only as involving in itself a certain measure of intellectual discrimination, but also as an essential and fundamental condition to the agency of the cogitant, as a portion of the human soul. We have already gone through the three successive stages—phantastic, memorial, reminiscent—whereby the interval between sensation and cogitation is bridged over. Each of the three is directly dependent on past sensation, either as reproduction or as corollary; each of them is an indispensable condition of man's cogitation; moreover, in the highest of the three, we have actually slid unperceived into the cogitant phase of the human soul; for Aristotle declares the reminiscent process to be of the nature of a syllogism.[a] That the soul cannot cogitate or reason without phantasms—that phantasms are required for the actual working of the human Noûs—he affirms in the most explicit manner.[b]

The doctrine of Aristotle respecting Noûs has been a puzzle, even from the time of his first commentators. Partly from the obscurity inherent in the subject, partly from the defective condition of his text as it now stands, his meaning cannot be always clearly comprehended, nor does it seem that the different passages can be completely reconciled.

Anaxagoras, Demokritus, and other philosophers, appear to have spoken of Noûs or Intellect in a large and vague sense, as equivalent to Soul generally. Plato seems to have been the first to narrow and specialize the meaning; distinguishing pointedly (as we have stated above) the rational or encephalic soul, in the cranium, with its circular rotations, from the two lower souls, thoraic and abdominal. Aristotle agreed with him in this distinction (either of separate souls or of separate functions in the same soul); but he attenuated and divested it of all connexion with separate corporeal lodgment, or with peculiar movements of

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term for *believing* or *opining* upon reasons good or bad; the varieties under it are *ἐπιστήμη, δόξα, φρόνησις καὶ τἀναντία τούτων* (p. 427, b. 16-27).

[a] Aristot. De Memor. et Rem. ii. p. 453, a. 10.

[b] Ibid. p. 449, b. 31-p. 450, a. 12: *νοεῖν οὐκ ἔστιν ἄνευ φαντάσματος—ἡ δὲ μνήμη καὶ ἡ τῶν νοητῶν οὐκ ἄνευ φαντάσματός ἐστιν.*—De Animâ, III. vii. p. 431, a. 16.

any kind. In his psychology, the brain no longer appears as the seat of intelligence, but simply as a cold, moist, and senseless organ, destined to countervail the excessive heat of the heart: which last is the great centre of animal heat, of life, and of the sentient soul. Aristotle declares Noûs not to be connected with, or dependent on, any given bodily organs or movements appropriated to itself: this is one main circumstance distinguishing it from the nutrient soul as well as from the sentient soul, each of which rests indispensably upon corporeal organs and agencies of its own.

It will be remembered that we stated the relation of Soul to Body (in Aristotle's view) as that of Form to Matter; the two together constituting a concrete individual, numerically one; also that Form and Matter, each being essentially relative to the other, admitted of gradations, higher and lower; *e.g.* a massive cube of marble is already *materia formata*, but it is still purely *materia*, relative to the statue that may be obtained from it. Now, the grand region of Form is the Celestial Body—the vast, deep, perceivable, circular mass circumscribing the Kosmos, and enclosing, in and around its centre, Earth with the other three elements, tenanted by substances generated and perishable. This Celestial Body is the abode of divinity, including many divine beings who take part in its eternal rotations, viz. the Sun, Moon, Stars, &c., and other Gods. Now, every soul, or every form that animates the matter of a living being, derives its vitalizing influence from this celestial region. All seeds of life include within them a spiritual or gaseous heat, more divine than the four elements, proceeding from the sun, and in nature akin to the element of the stars. Such solar or celestial heat differs generically from the heat of fire. It is the only source from whence the principle of life, with the animal heat that accompanies it, can be obtained. Soul, in all its varieties, proceeds from hence.[a]

But though all varieties of Soul emanate from the same celestial source, they possess the divine element in very different degrees, and are very unequal in comparative worth and dignity. The lowest variety, or nutritive soul—the only one possessed by plants, among which there is no separation of sex[b]—is contained potentially in the seed, and is thus transmitted when

[a] Aristot. De Generat. Animal. II. iii. p. 736, b. 29; πάσης μὲν οὖν ψυχῆς δύναμις ἑτέρου σώματος ἔοικε κεκοινωνηκέναι καὶ θειοτέρου τῶν καλουμένων στοιχείων· ὡς δὲ διαφέρουσι τιμιότητι αἱ ψυχαὶ καὶ ἀτιμίᾳ ἀλλήλων, οὕτω καὶ ἡ τοιαύτη διαφέρει φύσις· πάντων μὲν γὰρ ἐν τῷ σπέρματι ἐνυπάρχει, ὅπερ ποιεῖ γόνιμα εἶναι τὰ σπέρματα, τὸ καλούμενον θερμόν.

[b] Ibid. I. xxiii. p. 731, a. 27.

that seed is matured into a new individual. In animals, which possess it along with the sensitive soul and among which the sexes are separated, it is also contained potentially in the generative system of the female separately; and the first commencement of life in the future animal is thus a purely vegetable life.[a] The sensitive soul, the characteristic of the complete animal, cannot be superadded except by copulation and the male semen. The female, being comparatively impotent and having less animal heat, furnishes only the matter of the future offspring; form, or the moving, fecundating, cause, is supplied by the male. Through the two together the new individual animal is completed, having not merely the nutritive soul, but also the sentient soul along with it.[b]

Both the nutritive and the sentient souls have, each of them respectively, a special bodily agency and movement belonging to them. But the Noûs, or the noëtic soul, has no partnership with any similar bodily agency. There is no special corporeal potentiality (to speak in Aristotelian language) which it is destined to actualize. It enters from without, and emanates from a still more exalted influence of that divine celestial substance from which all psychical or vitalizing heat proceeds.[c] It is superinduced upon the nutritive and sentient souls, and introduces itself at an age of the individual later than both of them. Having no part of the bodily organism specially appropriated to it, this variety of soul—what is called the Noûs—stands distinguished from the other two in being perfectly separable from the body;[d] that is, separable from the organized body which it is the essential function of the two lower souls to actualize, and with which both of them are bound up. The Noûs is not separable from the body altogether; it belongs essentially to the divine celestial body, and to those luminaries and other divine beings by whom portions of it are tenanted. Theorizing contemplation—the perfect, unclouded, unembarrassed, exercise of the theoretical Noûs—is the single mental activity of these divinities; contemplation of the formal regularity of the Kosmos, with its eternal and faultless rotations,

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[a] Aristot. De Generat. Animal. II. iii. p. 736, b. 12.

[b] Ibid. I. ii. p. 716, a. 4-17; xix. p. 726, b. 33; xx. p. 728, a. 17; xxi. p. 729, b. 6-27.

[c] Ibid. II. iii. p. 736, b. 27: λείπεται δὲ τὸν νοῦν μόνον θύραθεν ἐπεισιέναι, καὶ θεῖον εἶναι μόνον· οὐθὲν γὰρ αὐτοῦ τῇ ἐνεργείᾳ κοινωνεῖ σωματικὴ ἐνέργεια. The words θεῖον εἶναι μ ό ν ο ν must not be construed strictly, for in the next following passage he proceeds to declare that *all* ψυχή, ψυχικὴ δύναμις or ἀρχή, partakes of the divine element, and that in this respect there is only a difference of degree between one ψυχὴ and another.

[d] Ibid. p. 737, a. 10: ὁ καλούμενος νοῦς. De Animâ, II. ii. p. 413, b. 25; iii. p. 415, a. 11.

and with their own perfection as participating therein. The celestial body is the body whereto Noûs, or the noëtic soul, properly belongs;[a] quite apart from the two other souls, sentient and nutritive, upon which it is grafted in the animal body; and apart also from all the necessities of human action, preceded by balanced motives and deliberate choice.[b]

From this celestial body, a certain influence of Noûs is transferred to some of the mortal inhabitants of earth, water, and air. Thus a third or noëtic soul—or rather a third noëtic function—is added to the two existing functions, sensitive and nutrient, of the animal soul, which acquires thereby an improved aptitude for, and correlation with, the Formal and Universal. We have already stated that the sensitive soul possesses this aptitude to a certain extent; it receives the impression of sensible forms, without being impressed by the matter accompanying them. The noëtic function strengthens and sharpens the aptitude; the soul comes into correlation with those cogitable or intellective forms which are involved in the sensible forms;[c] it rises from the lower generalities of the Second Philosophy, to the higher generalities of the First Philosophy.

As the sentient or percipient soul is the form or correlate of all perceivables, and thus identified with them in nature, all of them having existence only in relation to it,—so the cogitant or intellective soul is the form or correlate of all cogitables, all of which exist relatively to it, and only relatively.[d] It is in fact the highest of all forms—the Form of Forms; the mental or subjective aspect of all formal reality.

Such at least is the tendency and purpose of that noëtic influence which the celestial substance imparts to the human soul; but it is realized only to a very small degree. In its characteristic theorizing efficacy, the godlike Noûs counts for a small fraction of the whole soul, though superexcellent in quality.[e] There are but few men in whom it is tolerably developed, and even in those few it is countervailed by many other agencies.[f] The noëtic function in men and animals exists

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[a] Respecting τὸ ἄνω σῶμα, see the copious citations in Trendelenburg's note ad Aristot. De Animâ, II. vii.; Comm. p. 373.

[b] Aristot. Ethic. Nikom. X. viii. p. 1178, b. 20: τῷ δὴ ζῶντι τοῦ πράττειν ἀφῃρημένῳ, ἔτι δὲ μᾶλλον τοῦ ποιεῖν, τί λείπεται πλὴν θεωρίας; ὥστε ἡ τοῦ θεοῦ ἐνέργεια, μακαριότητι διαφέρουσα, θεωρητικὴ ἂν εἴη.—See also Metaphysic. Λ. v. p. 1074, b. 26-35.

[c] Aristot. De Animâ, III. viii. p. 432, a. 6: ἐν τοῖς εἴδεσι τοῖς αἰσθητοῖς τὰ νοητά ἐστιν.

[d] Ibid. p. 432, b. 2: ὁ νοῦς εἶδος εἰδῶν καὶ ἡ αἴσθησις εἶδος αἰσθητῶν.

[e] Aristot. Ethic. Nikom. X. vii. p. 1177, b. 34: εἰ γὰρ καὶ τῷ ὄγκῳ μικρόν ἐστι, δυνάμει καὶ τιμιότητι πολὺ μᾶλλον πάντων ὑπερέχει.

[f] Aristot. De Memor. et Remin. i. p. 450, a. 88.

only in companionship with the two other psychical functions. It is subservient to the limits and conditions that they impose, as well as to the necessities of individual and social action; to all that is required for "acting like a man," according to the Aristotelian phrase. Man's nature is complex, and not self-sufficing for a life of theorizing contemplation, such as that wherein the celestial inmates pass their immortality of happiness.[a]

We have thus to study the noëtic function according to the manifestations of it that we find in man, and to a certain extent in some other privileged animals. Bees, for example, partake in the divine gift to a certain extent; being distinguished in this respect from their analogues—wasps and hornets.[b]

In these and other animals, and in man to a still greater degree, the theorizing activity exists; but it is either starved, or at least has to deal with materials obscure, puzzling, conflicting; while, on the other hand, the practical intellect becomes largely developed, through the pressure of wants and desires, combined with the teaching of experience. In Aristotle's view, sensible perception is a separate source of knowledge, accompanied with judgment and discrimination, independent of the noëtic function. Occasionally, he refers the intellectual superiority of man to the properly attempered combination and antagonism of heat in the heart with cold in the brain, each strong and pure;[c] all the highly endowed animals (he says)

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[a] Aristot. Ethic. Nikom. X. vii. p. 1177, b. 26: *ὁ δὲ τοιοῦτος ἂν εἴη βίος κρείττων ἢ κατ' ἄνθρωπον.*—viii. p. 1178, b. 6: *δεήσεται οὖν τοιούτων πρὸς τὸ ἀνθρωπεύεσθαι.*—ix. p. 1178, b. 33: *οὐκ αὐτάρκης ἡ φύσις πρὸς τὸ θεωρεῖν.* Compare similar sentiments in Aristot. Metaphys. A. ii. p. 983, a. 1.

[b] Aristot. De Gen. Animal. III. x. p. 760, a. 4: *ὄντος δὲ περιττοῦ τοῦ γένους καὶ ἰδίου τοῦ τῶν μελιττῶν.*—p. 761, a. 4: *οὐ γὰρ ἔχουσιν* (wasps and hornets) *οὐδὲν θεῖον, ὥσπερ τὸ γένος τῶν μελιττῶν.* It is remarkable that *περιττός*, the epithet here applied by Aristotle to bees, is the epithet that he also applies to men of theoretical and speculative activity, as contrasted with men prudent and judicious in action (see Metaphys. A. ii. p. 983, a. 2; also Ethic. Nikom. VI. vii. p. 1141, b. 6). Elsewhere he calls bees *φρόνιμα* (Metaphys. A. i. p. 980, b. 22). See a good note of Torstrick (on Aristot. De Animâ, III. p. 428, a. 10), p. 172 of his Commentary. Aristotle may possibly have been one among the philosophers that Virgil had in his mind, in Georgics, iv. 219:—

> "His quidam signis, atque hæc exempla secuti,
> Esse apibus partem divinæ mentis, et haustus
> Æthereos dixere: Deum namque ire per omnes
> Terrasque, tractusque maris, cœlumque profundum," &c.

[c] Aristot. De Generat. Animal. II. vi. p. 744, a. 11-31: *δηλοῖ δὲ τὴν εὐκρασίαν ἡ διάνοια· φρονιμώτατον γάρ ἐστι τῶν ζῴων ἄνθρωπος.* We may remark that Aristotle considers cold as in some cases a positive property, not simply as the absence or privation of heat (De Partibus Animal. II. ii. p. 649, a. 18). The heart is the part wherein the psychical fire (as it were) is kept burning: *τῆς ψυχῆς ὥσπερ ἐμπεπυρευμένης ἐν τοῖς μορίοις τούτοις* (Aristot. De Vitâ et Morte, iv. p. 469, b. 16). Virgil, in the beautiful lines of his Second Georgic (483), laments that he is disqualified for deep philosophical studies by the want of heat round his heart:—

> "Sin, has ne possim naturæ accedere partes,
> Frigidus obstiterit circum præcordia sanguis,"
> &c.

have greater animal heat, which is the essential condition of a better soul;[a] he reckons the finer sense of touch possessed by man as an essential condition of the same intellectual result.[b] Sensible perception in its five diverse manifestations, together with its secondary psychical effects—phantasy and memory, accumulates in the human mind (and in some animals) a greater or less experience of particular facts; from some of which inferences are drawn as to others unknown, directing conduct as well as enlarging knowledge.[c]

All this process—a perpetual movement of sense and memory—begins from infancy, and goes on independently of Noûs or the noëtic function properly so called; which grows up gradually at a later age, aided by the acquisition of language and by instruction conveyed through language. The supervening Noûs presupposes and depends upon what has been thus treasured up by experience. Though, in the celestial body, Noûs exists separately from human beings, and though it there operates *proprio motu* apart from sense, such is not the case with the human Noûs; which depends upon the co-operation, and is subject to the restrictions, of the complicated soul and body wherewith it is domiciled—restrictions differing in each individual case. Though the noëtic process is distinct from sense, yet without sense it cannot take place in man. Aristotle expressly says: "You cannot cogitate without a phantasm or without a continuous image." Now the phantasm has been already explained as a relic of movements of sense—or as those movements themselves, looked at in another point of view.[d] "When we cogitate" (he says), "our mental affection is the same as when we draw a triangle for geometrical study; for there, though we do not make use of the fact that the triangle is determinate in its magnitude, we still draw it of a determinate magnitude. So in cogitation, even when we are not cogitating a determinate *quantum*, we nevertheless set before our eyes a determinate *quantum*, but we do not cogitate it *quatenus* determinate."[e] We

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[a] Aristot. De Respirat. xiii. p. 477, a. 16.

[b] Aristot. De Animâ, II. ix. p. 421, a. 21.

[c] Aristot. Metaphys. A. i. pp. 980-1.

[d] Aristot. De Somniis i. p. 459, a. 15; De Animâ, III. vii. p. 431, a. 17; iii. p. 428, b. 12.

[e] Aristot. De Memor. et Remin. i. p. 449, b 30; ἐπεὶ δὲ περὶ φαντασίας εἴρηται πρότερον ἐν τοῖς περὶ ψυχῆς, καὶ νοεῖν οὐκ ἔστιν ἄνευ φαντάσματος· συμβαίνει γὰρ τὸ αὐτὸ πάθος ἐν τῷ νοεῖν ὅπερ καὶ ἐν τῷ διαγράφειν· ἐκεῖ τε γὰρ οὐθὲν προσχρώμενοι τῷ τὸ ποσὸν ὡρισμένον εἶναι τὸ τριγώνου, ὅμως γράφομεν ὡρισμένον κατὰ τὸ ποσόν· καὶ ὁ νοῶν ὡσαύτως, κἂν μὴ ποσὸν νοῇ, τίθεται πρὸ ὀμμάτων ποσόν, νοεῖ δ' οὐχ ᾗ ποσόν.

This passage appears to be as clear a statement of the main doctrine of Nominalism as can be found in Hobbes or Berkeley. In the sixteenth section of the Introduction to the Principles of Human Knowledge, Berkeley says:—"And here it must be acknowledged that a man may

cannot even (he goes on to say) remember the *cogitabilia* without "a phantasm or sensible image; so that our memory of them is only by way of concomitance" (indirect and secondary).[a] Phantasy is thus absolutely indispensable to cogitation: first to carrying on the process at all; next to remembering it after it is past. Without either the visible phantasm of objects seen and touched, or the audible phantasm of words heard and remembered, the Noûs in human beings would be a nullity.[b]

We see that, though Aristotle recognizes a general distinction between phantasy and cogitation, and alludes to many animals as having the former without attaining to the latter, yet he also declares that in man, who possesses both, not only is cogitation dependent upon phantasy, but phantasy passes into cogitation by gradations almost imperceptible. In regard to the practical application of Noûs (*i.e.* to animal movements determined either by appetite or by reason), he finds a great difficulty in keeping the distinction clearly marked. Substantially, indeed, he lets it drop. When he speaks of phantasy as being either calculating or perceptive, we are unable to see in what respect *calculating phantasy* (which he states not to belong to other animals) differs from an effort of cogitation.[c] Indeed, he speaks with some diffidence respecting any distribution of parts in the same soul, suspecting that such distribution is not real but logical: you may subdivide as much as you choose.[d]

It thus appears clear that Aristotle restricts the Noûs or noëtic function *in man* to the matters of sense and experience, physical or mental, and that he considers the phantasm to be an essential accompaniment of the cogitative act. Yet this does not at all detract from his view of the grandeur, importance, and wide range of survey, belonging to the noëtic function. It is the portion of man's nature that correlates with the abstract and universal; but it is only a portion of his nature, and must work in conjunction and harmony with the rest. The abstract cannot be really separated from the concrete, nor the universal from one or other of its particulars, nor the essence from that whereof it is

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consider a figure merely as triangular, without attending to the particular qualities of the angles or relations of the sides.—In like manner we may consider Peter so far forth as man, or so far forth as animal, without framing the forementioned idea, either of man or animal, *inasmuch as all that is perceived is not considered.*" Berkeley has not improved upon the statement of Aristotle.

[a] Aristot. De Memor. et Remin. i. p. 450, a. 13.

[b] About sense and hearing, as the *fundamenta* of intellect, see Aristot. De Sensu et Sensili, i. p. 437, a. 1-17.

[c] Aristot. De Animâ, III. x. p. 433, a. 9-b. 30: *εἴ τις τὴν φαντασίαν τιθείη ὡς νόησίν τινα—φαντασία δὲ πᾶσα ἢ λογιστικὴ ἢ αἰσθητική· ταύτης μὲν οὖν καὶ τὰ ἄλλα ζῷα μετέχει.* Also vii. p. 431, b. 7.

[d] Ibid. ix. p. 432, a. 23.

the essence, nor the attribute from that of which it is the attribute, nor the genus and species from the individuals comprehended therein; nor, to speak in purely Aristotelian language, the Form from some Matter, or the Matter from some Form. In all these cases there is a *notional* or *logical* distinction, impressing the mind as the result of various comparisons, noted by an appropriate term, and remembered afterwards by means of that term (that is, by means of an audible or visible phantasm); but real separation there neither is nor can be. This is the cardinal principle of Aristotle, repeated in almost all his works—his marked antithesis against Plato. Such logical distinctions as those here noticed (they might be multiplied without number) it belongs to Noûs or the noëtic function to cognize. But the real objects, in reference to which alone the distinctions have a meaning, are concrete and individual; and the cognizing subject is really the entire man, employing indeed the noëtic function, but employing it with the aid of other mental forces, phantasms and remembrances, real and verbal.

The noëtic soul is called by Aristotle "the place of Forms," "the potentiality of Forms," "the correlate of things apart from Matter."[a] It cogitates these Forms in or along with the phantasms: the cogitable Forms are contained *in* the sensible Forms; for there is nothing really existent beyond or apart from visible or tangible magnitudes, with their properties and affections, and with the so-called abstractions considered by the geometer. Hence, without sensible perception, a man can neither learn nor understand anything; in all his theoretical contemplations, he requires some phantasm to contemplate along with them.[b]

Herein lies one of the main distinctions between the noëtic and the sentient souls. The sentient deals with particulars, and correlates with external bodies; the noëtic apprehends universals, which in a certain sense are within the soul: hence a man can cogitate whenever or whatever he chooses, but he can see or touch only what is present.[c] Another distinction is, that the sentient soul is embodied in special organs, each with determinate capacities, and correlating with external objects, themselves alike determinate, acting only under certain conditions of locality.

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[a] Aristot. De Animâ, III. iv. p. 429, a. 27, b. 22.

[b] Ibid. vii. p. 431, b. 2: τὰ μὲν οὖν εἴδη τὸ νοητικὸν ἐν τοῖς φαντάσμασι νοεῖ.—viii. p. 432, a. 3: ἐπεὶ δὲ οὐδὲ πρᾶγμα οὐθέν ἐστι παρὰ τὰ μεγέθη, ὡς δοκεῖ, τὰ αἰσθητὰ κεχωρισμένον, ἐν τοῖς εἴδεσι τοῖς αἰσθητοῖς τὰ νοητά ἐστι, τά τε ἐν ἀφαιρέσει λεγόμενα, καὶ ὅσα τῶν αἰσθητῶν ἕξεις καὶ πάθη· καὶ διὰ τοῦτο οὔτε μὴ αἰσθανόμενος μηθὲν οὐθὲν ἂν μάθοι οὐδὲ ξυνείη· ὅταν δὲ θεωρῇ, ἀνάγκη ἅμα φάντασμά τι θεωρεῖν.

[c] Ibid. II. v. p. 417, b. 22.

The possibilities of sensation are thus from the beginning limited; moreover, a certain relative proportion must be maintained between the percipient and the perceivable; for extreme or violent sounds, colours, &c., produce no sensation; on the contrary, they deaden the sentient organ.[a] But the noëtic soul (what is called the "Noûs of the soul," to use Aristotle's language)[b] is nothing at all in actuality before its noëtic function commences, though it is everything in potentiality. It is not embodied in any corporeal organ of its own, nor mingled as a new elementary ingredient with the body; it does not correlate with any external objects; it is not so specially attached to some particulars as to make it antipathetic to others. Accordingly its possibilities of cogitation are unlimited; it apprehends with equal facility what is most cogitable and what is least cogitable. It is thoroughly indeterminate in its nature, and is in fact at first a mere unlimited cogitative potentiality;[c] like a tablet, upon which no letters have as yet been written, but upon which all or any letters *may be* written.[d]

We have already said that the Noûs of the human soul emanates from a peculiar influence of the celestial body, which is the special region of Form in the Kosmos. Through it we acquire an enlarged power of apprehending the abstract and universal; we can ascend above sensible forms to the cogitable forms contained therein; we can consider all forms in themselves, without paying attention to the matter wherein they are embodied. Instead of considering the concrete solid or liquid before us, we can mentally analyse them, and thus study solidity in the abstract, fluidity in the abstract. While our senses judge of water as hot and cold, our noëtic function enables us to appreciate water in the abstract—to determine its essence, and to furnish a definition of it.[e] In all these objects, as combinations of Form with Matter, the cogitable form exists potentially; and is abstracted or considered abstractedly, by the cogitant Noûs.[f] Yet this last (as we have already seen) cannot operate except along with and by aid of phantasms—of impressions revived or remaining from sense. It is thus immersed in the materials of sense, and has no others. But it handles them in a way of its own, and under new points of view; comparing and analysing; recognizing the abstract in the concrete, and the universal in the particular;

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[a] Aristot. De Animâ, III. iv. p. 429, a. 31.

[b] Ibid. a. 22: *ὁ ἄρα καλούμενος τῆς ψυχῆς νοῦς (λέγω δὲ νοῦν ᾧ διανοεῖται καὶ ὑπολαμβάνει ἡ ψυχή) οὐθέν ἐστιν ἐνεργείᾳ τῶν ὄντων πρὶν νοεῖν.*

[c] Ibid. a. 21: *ὥστε μηδ' αὐτοῦ εἶναι φύσιν μηδεμίαν ἀλλ' ἢ ταύτην, ὅτι δυνατόν.*

[d] Ibid. p. 430, a. 1.

[e] Ibid. p. 429, b. 10.

[f] Ibid. p. 430, a. 2-9.

discriminating mentally and logically the one from the other; and noting the distinction by appropriate terms. Such distinctions are the *noümena*, generated in the process of cogitation by Noûs itself. The Noûs, as it exists in any individual, gradually loses its original character of naked potentiality, and becomes an actual working force, by means of its own acquired materials.[a] It is an aggregate of *noümena*, all of them in nature identical with itself; and, while cogitating them, the Noûs at the same time cogitates itself. Considered abstractedly, apart from matter, they exist only in the mind itself; in theoretical speculation, the *cognoscens* and the *cognitum* are identical. But they are not really separable from matter, and have no reality apart from it.

The distinction, yet at the same time correlation, between Form and Matter, pervades all nature (Aristotle affirms), and will be found in the Noûs as elsewhere. We must recognize an *Intellectus Agens* or constructive, and an *Intellectus Patiens* or receptive.[b] The *Agens* is the great intellectual energy pervading the celestial body, and acting upon all the animals susceptible of its operation; analogous to light, which illuminates the diaphanous medium, and elevates what was mere potential colour into colour actual and visible.[c] The *Patiens* is the intellectual receptivity acted upon in each individual, and capable of being made to cogitate every thing; anterior to the *Agens*, in time, so far as regards the individual, yet as a general fact (when we are talking of man as a species) not anterior even in time, but correlative. Of the two, the *Intellectus Agens* is the more venerable; it is pure intellectual energy, unmixed, unimpressible from without, and separable from all animal body. It is this, and nothing more, when considered apart from animal body; but it is then eternal and immortal, while the *Intellectus Patiens* perishes with the remaining soul and with the body. Yet though the *Intellectus Agens* is thus eternal, and though *we* have part in it, we cannot remember any of its operations anterior to our own maturity; for the concurrence of the *Intellectus Patiens*, which

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[a] Aristot. De Animâ, II. v. p. 417, b. 23. Ibid. III. iv. p. 429, b. 7: *ὅταν δύνηται ἐνεργεῖν δι' αὐτοῦ.*

[b] Ibid. III. v. p. 430, a. 10.

[c] Ibid. a. 14: *καὶ ἔστιν ὁ μὲν τοιοῦτος νοῦς τῷ πάντα γίνεσθαι, ὁ δὲ τῷ πάντα ποιεῖν, ὡς ἕξις τις, οἷον τὸ φῶς· τρόπον γάρ τινα καὶ τὸ φῶς ποιεῖ τὰ δυνάμει ὄντα χρώματα ἐνεργείᾳ χρώματα.* Aristotle here illustrates *νοῦς ποιητικός* by *φῶς* and *ἕξις*; and we know what view he takes of *φῶς* (De Animâ, II. vii. p. 418, b. 9) as the *ἐνέργεια* or *ἕξις τοῦ διαφανοῦς*—which *diaphanous* he explains to be a *φύσις τις ἐνυπάρχουσα ἐν ἀέρι καὶ ὕδατι καὶ ἐν τῷ ἀϊδίῳ τῷ ἄνω σώματι.* Judging by this illustration, it seems proper to couple the *νοῦς ποιητικός* here with his declaration in De Generat. Animal. II. p. 736, b. 28: *τὸν νοῦν μόνον θύραθεν ἐπεισιέναι καὶ θεῖον εἶναι μόνον*: he cannot consider the *μοῦς ποιητικός*, which is of the nature of Form, as belonging to each individual man like the *νοῦς παθητικός*.

begins and ends with us, is indispensable both to remembrance and to thought.[a]

We see here the full extent of Aristotle's difference from the Platonic doctrine, in respect to the immortality of the soul. He had defined soul as the first actualization of a body having potentiality of life with a determinate organism. This of course implied, and he expressly declares it, that soul and body in each individual case were one and indivisible, so that the soul of Sokrates perished of necessity with the body of Sokrates.[b] But he accompanied that declaration with a reserve in favour of Noûs, and especially of the theorizing Noûs; which he recognized as a different sort of soul, not dependent on a determinate bodily organism, but capable of being separated from it, as the eternal is from the perishable.[c] The present chapter informs us how far such reserve is intended to go. That the theorizing Noûs is not limited, like the sentient soul, to a determinate bodily organism, but exists apart from that organism and eternally—is maintained as incontestable: it is the characteristic intellectual activity of the eternal celestial body and the divine inmates thereof. But the distinction of Form and Matter is here pointed out, as prevailing in Noûs and in Soul generally, not less than throughout all other Nature. The theorizing Noûs, as it exists in Sokrates, Plato, Demokritus, Anaxagoras, Empedokles, Xenokrates, &c., is individualized in each, and individualized differently in each. It represents the result of the *Intellectus Agens* or Formal Noûs, universal and permanent, upon the *Intellectus Patiens* or noëtic receptivity peculiar to each individual; the co-operation of the two is indispensable to sustain the theorizing intellect of any individual man. But the *Intellectus Patiens*, or *Receptivus*, perishes along with the individual. Accordingly, the intellectual life of Sokrates cannot be continued farther. It cannot be prolonged after his sensitive and nutritive life has ceased; the noëtic function, as it exists in him, is subject to the same limits of duration as the other functions of the soul. The intellectual man is no more immortal than the sentient man.

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[a] Aristot. De Animâ, III. v. p. 430, a. 17: *καὶ οὗτος ὁ νοῦς* (*i.e. ποιητικός*) *χωριστὸς καὶ ἀπαθὴς καὶ ἀμιγής, τῇ οὐσίᾳ ὢν ἐνέργεια· ἀεὶ γὰρ τιμιώτερον τὸ ποιοῦν τοῦ πάσχοντος, καὶ ἡ ἀρχὴ τῆς ὕλης.*—Ibid. a. 22: *χωρισθεὶς δ' ἐστὶ μόνον τοῦθ' ὅπερ ἐστί, καὶ τοῦτο μόνον ἀθάνατον καὶ ἀΐδιον· οὐ μνημονεύομεν δέ, ὅτι τοῦτο μὲν ἀπαθές, ὁ δὲ παθητικὸς νοῦς φθαρτός, καὶ ἄνευ τούτου οὐθὲν νοεῖ.* In this obscure and difficult chapter (difficult even to Theophrastus the friend and pupil of the author), we have given the best meaning that the words seem to admit.

[b] Ibid. II. i. p. 413, a. 3.

[c] Ibid. ii. p. 413, b. 24: *περὶ δὲ τοῦ νοῦ καὶ τῆς θεωρητικῆς δυνάμεως οὐδέν πω φανερόν, ἀλλ' ἔοικε ψυχῆς γένος ἕτερον εἶναι, καὶ τοῦτο μόνον ἐνδέχεται χωρίζεσθαι, καθάπερ τὸ ἀΐδιον τοῦ φθαρτοῦ.*

Such is the opinion here delivered by Aristotle. And it follows indeed as a distinct corollary from his doctrine respecting animal and vegetable procreation in general. Individuality (the being *unum numero* in a species) and immortality are in his view incompatible facts; the one excludes the other. In assigning (as he so often does) a final cause or purpose to the wide-spread fact of procreation of species by animals and vegetables, he tells us that every individual living organism, having once attained the advantage of existence, yearns and aspires to prolong this for ever, and to become immortal. But this aspiration cannot be realized; Nature has forbidden it, or is inadequate to it; no individual can be immortal. Being precluded from separate immortality, the individual approaches as near to it as is possible, by generating a new individual like itself, and thus perpetuating the species. Such is the explanation given by Aristotle of the great fact pervading the sublunary, organized world [a]—immortal species of plants, animals, and men, through a succession of individuals each essentially perishable. The general doctrine applies to Noûs as well as to the other functions of the soul. Noûs is immortal; but the individual Sokrates, considered as noëtic or intellectual, can no more be immortal than the same individual considered as sentient or reminiscent.

We have already stated that Noûs—Intellect—the noëtic function—is that faculty of the soul that correlates with the abstract and universal; with Form apart from Matter. Its process is at once analytical, synthetical, and retentive. Nature presents to us only concretes and particulars, in a perpetual course of change and reciprocal action; in these the abstract and universal are immersed, and out of these they have to be disengaged by logical analysis. That the abstract is a derivative from the concrete, and the universal from particulars—is the doctrine of Aristotle. Ascending from particulars, the analysis is carried so far that at length it can go no farther. It continues to divide until it comes to *indivisibles*, or simple notions, the highest abstractions, and the largest universals. These are the elements out of which universal propositions are formed, the first premisses or *principia* of demonstration. Unphilosophical minds do not reach these indivisibles at all: but it is the function of the theorizing Noûs to fasten on them, and combine them into true propositions. In so far as regards the indivisibles themselves, falsehood is out of the question, and

[a] Aristot. De Generat. Animal. II. i. p. 731, b. 20, seq.; De Animâ, II. iv. p. 415, a. 26, seq.; Œconomica, I. iii. p. 1343, b. 23.

truth also, since they affirm nothing. The mind either apprehends them, or it does not apprehend them: there is no other alternative.[a] But, when combined into affirmative propositions, they then are true or false, as the case may be. The formal essence of each object is among these indivisibles, and is apprehended as such by the intellect; which, while confining itself to such essence, is unerring, as each sense is in regard to its own appropriate perceivables.[b] But, when the intellect goes farther, and proceeds to predicate any attribute respecting the essence, then it becomes liable to error, as sense is when drawing inferences.

One of the chief functions that Aristotle assigns to Noûs, or the noëtic function, is that the *principia* of demonstration and knowledge belong to it; and not merely the *principia*, but also, in cases of action preceded by deliberation and balance of motives, the ultimate application of *principia* to action. So that he styles Noûs both beginning and end; also the beginning of the beginning; and, moreover, he declares it to be always right and unerring—equal to Science and even more than Science.[c] These are high praises, conveying little information, and not reconcilable with other passages wherein he speaks of the *exercise* of the noëtic function (τὸ νοειν) as sometimes right, sometimes wrong.[d] But, for the question of psychology, the point to be determined is, in what sense he meant that *principia* belonged to Noûs. He certainly did not mean that the first principles of reasoning were novelties originated, suggested, or introduced into the soul by noëtic influence. Not only he does not say this, but he takes pains to impress the exact contrary. In passages cited a few pages back, he declares that Noûs in entering the soul brings nothing whatever with it; that it is an universal potentiality—a capacity in regard to truth, but nothing more;[e] that it is in fact a capacity not merely for comparing and judging (to both of which he recognizes even the sentient soul as competent), but also for combining many into one, and resolving the apparent one into several; for abstracting, generalizing,

[a] Aristot. De Animâ, III. vi. p. 430, a. 26: ἡ μὲν οὖν τῶν ἀδιαιρέτων νόησις ἐν τούτοις περὶ ἃ οὐκ ἔστι τὸ ψεῦδος· ἐν οἷς δὲ καὶ τὸ ψεῦδος καὶ τὸ ἀληθές, σύνθεσίς τις ἤδη νοημάτων ὥσπερ ἓν ὄντων.—Metaphysica, Θ. x. p. 1051, b. 31: περὶ ταῦτα οὐκ ἔστιν ἀπατηθῆναι, ἀλλ' ἢ νοεῖν ἢ μή.

[b] Aristot. De Animâ, III. vi. p. 430, b. 29. This portion of the treatise is peculiarly confused and difficult to understand.

[c] Aristot. Ethic. Nikomach. VI. xii. p. 1143, a. 25, b. 10: διὸ καὶ ἀρχὴ καὶ τέλος νοῦς.—Analyt. Post. II. xviii. p. 100, b. 5.

[d] Aristot. De Animâ, III. iii. p. 427, b. 8: ἀλλ' οὐδὲ τὸ νοεῖν, ἐν ᾧ ἔστι τὸ ὀρθῶς καὶ μὴ ὀρθῶς—διανοεῖσθαι δ' ἐνδέχεται καὶ ψευδῶς.

[e] Ibid. I. ii. p. 404, a. 30, where he censures Demokritus: οὐ δὴ χρῆται τῷ νῷ ὡς δυνάμει τινὶ περὶ τὴν ἀλήθειαν, ἀλλὰ ταὐτὸ λέγει ψυχὴν καὶ νοῦν.—Compare ibid. III. iv. p. 429, a. 21, b. 30.

and selecting among the phantasms present, which of them should be attended to, and which should be left out of attention.[a] Such is his opinion about the noëtic function; and he states explicitly that the abstract and universal not only arise from the concrete and particular, but are inseparable from the same really—separable only logically.

He describes, at the end of the Analytica Posteriora and elsewhere, the steps whereby the mind ascends gradually from sense, memory, and experience, to general principles. And he indicates a curious contrast between these and the noëtic functions. Sense, memory, phantasy, reminiscence, are movements of the body as well as of the soul; our thoughts and feelings come and go, none of them remaining long. But the noëtic process is the reverse of this; it is an arrest of all this mental movement, a detention of the fugitive thoughts, a subsidence from perturbation—so that the attention dwells steadily and for some time on the same matters.[b] Analysis, selection, and concentration of attention, are the real characteristics of the Aristotelian Noûs. It is not (as some philosophers have thought) a source of new general truths, let into the soul by a separate door, and independent of experience as well as transcending experience.

Passing now to the Emotions, we find that these are not systematically classified and analysed by Aristotle, as belonging to a scheme of Psychology; though he treats them incidentally, with great ability and acuteness, both in his Ethics, where he regards them as auxiliaries or impediments to a rational plan of life, and in his Rhetoric, where he touches upon their operation as it bears on oratorical effect. He introduces however in his Psychology some answer to the question, What is it that produces local movement in the animal body? He replies that movement is produced both by Noûs and by Appetite.

Speaking strictly, we ought to call Appetite alone the direct producing cause, acted upon by the *appetitum*, which is here the *Primum Movens Immobile*. But this *appetitum* cannot act without coming into the intellectual sphere, as something seen, imagined, cogitated.[c] In this case the Noûs or Intellect is stimulated through appetite, and operates in subordination thereto.

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[a] Aristot. De Animâ, III. vi. p. 430, b. 5: τὸ δὲ ἓν ποιοῦν, τοῦτο ὁ νοῦς ἕκαστον.—Ibid. xi. p. 434. a. 9.

[b] Aristot. Physica, VII. iii. p. 247, b. 9: ἡ δ' ἐξ ἀρχῆς λῆψις τῆς ἐπιστήμης γένεσις οὐκ ἔστιν· τῷ γὰρ ἠρεμῆσαι καὶ στῆναι τὴν διάνοιαν ἐπίστασθαι καὶ φρονεῖν λέγομεν.—Also De Animâ, I. iii. p. 407, b. 32, and the remarkable passage in the Analytica Poster. II. xviii. p. 100, a. 3-b. 5.

[c] Aristot. De Animâ, III. x. p. 433, b. 11: πρῶτον δὲ πάντων τὸ ὀρεκτὸν (τοῦτο γὰρ κινεῖ οὐ κινούμενον τῷ νοηθῆναι ἢ φαντασθῆναι).

Such is the Intellect, considered as Practical, the principle or determining cause of which is the *appetitum* or object of desire; the Intellect manifesting itself only for the sake of some end, to be attained or avoided. Herein it is distinguished altogether from the Theoretical Noûs or Intellect, which does not concern itself with any *expetenda* or *fugienda*, and does not meddle with conduct. The *appetitum* is good, real or apparent, in so far as it can be achieved by our actions. Often we have contradictory appetites; and, in such cases, the Intellect is active generally as a force resisting the present and caring for the future. But Appetite or Desire, being an energy including both soul and body, is the real and appropriate cause that determines us to local movement, often even against strong opposition from the Intellect.[a]

Aristotle thus concludes his scheme of Psychology, comprehending all plants as well as all animals; a scheme differing in this respect, as well as in others, from the schemes of those that had preceded him, and founded upon the peculiar principles of his own First Philosophy. Soul is to organized body as Form to Matter, as Actualizer to the Potential; not similar or homogeneous, but correlative; the two being only separable as distinct logical points of view in regard to one and the same integer or individual. Aristotle recognizes many different varieties of Soul, or rather many distinct functions of the same soul, from the lowest or most universal, to the highest or most peculiar and privileged; but the higher functions presuppose or depend upon the lower, as conditions; while the same principle of Relativity pervades them all. He brings this principle prominently forward, when he is summing up[b] in the third or last book of the treatise De Animâ:—"The Soul is in a certain way all existent things; for all of them are either Perceivables or Cogitables; and the Cogitant Soul is in a certain way the matters cogitated, while the Percipient Soul is in a certain way the matters perceived." The Percipient and its *Percepta*—the Cogitant and its *Cogitata*—each implies and correlates with the other: the Percipient is the highest Form of all *Percepta;* the Cogitant is the Form of Forms, or the highest of all Forms, cogitable or perceivable.[c] The Percipient or Cogitant Subject is thus conceived

[a] Aristot. De Animâ, III. x. p. 433, a. 25, b. 19: διὸ ἐν τοῖς κοινοῖς σώματος καὶ ψυχῆς ἔργοις, &c.

[b] Ibid. viii. p. 431, b. 20, seq.: νῦν δὲ περὶ ψυχῆς τὰ λεχθέντα συγκεφαλαιώσαντες, εἴπωμεν πάλιν ὅτι ἡ ψυχὴ τὰ ὄντα πώς ἐστι πάντα. ἢ γὰρ αἰσθητὰ τὰ ὄντα ἢ νοητά, ἔστι δὲ ἡ ἐπιστήμη μὲν τὰ ἐπιστητά πως, ἡ δ' αἴσθησις τὰ αἰσθητά.

[c] Ibid. p. 432, a. 2: ὁ νοῦς εἶδος εἰδῶν, καὶ ἡ αἴσθησις εἶδος αἰσθητῶν.

only in relation to the Objects perceived or cogitated, while these Objects again are presented as essentially correlative to the Subject. The realities of Nature are particulars, exhibiting Form and Matter in one: though, for purposes of scientific study—of assimilation and distinction—it is necessary to consider each of the two abstractedly from the other.

CHAPTER XIII.

ETHICA.

I.

THE Ethics of Aristotle presuppose certain conditions in the persons to whom they are addressed, without which they cannot be read with profit. They presuppose a certain training, both moral and intellectual, in the pupil.

First, the reason of the pupil must be so far developed, as that he shall be capable of conceiving the idea of a scheme of life and action, and of regulating his momentary impulses more or less by a reference to this standard. He must not live by passion, obeying without reflection the appetite of the moment, and thinking only of grasping at this immediate satisfaction. The habit must have been formed of referring each separate desire to some rational measure, and of acting or refraining to act according as such a comparison may dictate.

Next, a certain experience must have been acquired concerning human affairs, and concerning the actions of men with their causes and consequences. Upon these topics all the reasonings and all the illustrations contained in every theory of Ethics must necessarily turn: so that a person thoroughly inexperienced would be incompetent to understand them.

For both these two reasons, no youthful person, nor any person of mature years whose mind is still tainted with the defects of youth, can be a competent learner of Ethics or Politics (Eth. Nic. i. 7. Compare vii. 8). Such a pupil will neither appreciate the reasonings, nor obey the precepts (i. 3).

Again, a person cannot receive instruction in Ethics with advantage unless he has been subjected to a good practical discipline, so as to have acquired habits of virtuous action, and to have been taught to feel pleasure and pain on becoming occasions and in reference to becoming objects. Unless the circumstances by which he has been surrounded and the treatment which he has received, have been such as to implant in him a certain vein of sentiment and to give a certain direction to his factitious pleasures and pains—unless obedience to right

precepts has to a certain degree been made habitual with him—he will not be able to imbibe, still less to become attached to, even the *principia* of ethical reasoning (Eth. Nic. i. 4. 7). The well-trained man, who has already acquired virtuous habits, has within himself the ἀρχὴ, or beginning, from which happiness proceeds: he may do very well, even though the reason on which these habits were formed should never become known to him: but he will at least readily apprehend and understand the reason when it is announced. The ἀρχαὶ or beginnings to which ethical philosophy points and from whence the conduct which it enjoins is derived, are obtained only by habituation, not by induction nor by perception, like other ἀρχαί: and we ought in all our investigations to look after the ἀρχὴ in the way which the special nature of the subject requires, and to be very careful to define it well (i. 4, i. 7).

In considering Aristotle's doctrine respecting the ἀρχαὶ of ethical and political science, and the way in which they are to be discovered and made available, we should keep in mind that he announces the end and object of these sciences to be, not merely the enlargement of human knowledge, but the determination of human conduct towards certain objects: not theory, but practice: not to teach us what virtue is, but to induce us to practise it—"Since then the present science is not concerned with speculation, *like the others*. For here we enquire, not in order that we may know what virtue is, but in order that we may become good, otherwise there would be no profit in the enquiry" (ii. 2. *See* also i. 2, i. 5, vi. 5).

The remarks which Aristotle makes about the different ways of finding out and arriving at ἀρχαὶ, are curious. Some principles or beginnings are obtained by *induction*—others by *perception*—others by habituation in a certain way—others again in other ways. Other modes of arriving at ἀρχαὶ are noticed by the philosopher himself in other places. For example, the ἀρχαὶ of demonstrative science are said to be discovered by intellect (νοῦς)—vi. 6-7. There is a passage however in vi. 8 in which he seems to say that the ἀρχαὶ of the wise man (σόφος) and the natural man (φυσικὸς) are derived from experience: which I find it difficult to reconcile with the preceding chapters, where he calls wisdom a compound of intellect and science (ἐπιστήμη), and where he gives Thales and Anaxagoras as specimens of wise men. By vi. 6—it seems that wisdom has reference to matters of demonstrative science: how then can it be true that a youth may be a mathematician without being a wise man?

Moreover, Aristotle takes much pains, at the commencement

of his treatise on Ethics, to set forth the inherent intricacy and obscurity of the subject, and to induce the reader to be satisfied with conclusions not absolutely demonstrative. He repeats this observation several times—a sufficient proof that the evidence for his own opinions did not appear to himself altogether satisfactory (Eth. Nic. i. 3, i. 7, ii. 2). The completeness of the proof (he says) must be determined by the subject-matter: a man of cultivated mind will not ask for better proof than the nature of the case admits: and human action, to which all ethical theory relates, is essentially fluctuating and uncertain in its consequences, so that every general proposition which can be affirmed or denied concerning it, is subject to more or less of exception. If this degree of uncertainty attaches even to general reasonings on ethical subjects, the particular applications of these reasonings are still more open to mistake: the agent must always determine for himself at the moment, according to the circumstances of the case, without the possibility of sheltering himself under technical rules of universal application: just as the physician or the pilot is obliged to do in the course of his profession. "Now the actions and the interests of men exhibit no fixed rule, just like the conditions of health. And if this is the case with the universal theory, still more does the theory that refers to particular acts present nothing that can be accurately fixed; for it falls not under any art or any system, but the actors themselves must always consider what suits the occasion, just as happens in the physician's and the pilot's art. But though this is the case with the theory at present, *we must try to give it some assistance*" (πειρατέον βοηθεῖν).—Eth. Nic. 2.

The last words cited are remarkable. They seem to indicate, that Aristotle regarded the successful prosecution of ethical enquiries as all but desperate. He had previously said (i. 3)—"There is so much difference of opinion and so much error respecting what is honourable and just, of which political science treats, that these properties of human action seem to exist merely by positive legal appointment, and not by nature. And there is the same sort of error respecting what things are good, because many persons have sustained injury from them, some having already been brought to destruction through their wealth, others through their courage."

One cannot but remark how entirely this is at variance with the notion of a moral sense or instinct, or an intuitive knowledge of what is right and wrong. Aristotle most truly observes that the details of our daily behaviour are subject to such an infinite variety of modifications, that no pre-established rules can be

delivered to guide them: we must act with reference to the occasion and the circumstances. Some few rules may indeed be laid down, admitting of very few exceptions: but the vast majority of our proceedings cannot be subjected to any rule whatever, except to the grand and all-comprehensive rule, if we are indeed so to call it, of conforming to the ultimate standard of morality.

Supposing the conditions above indicated to be realized—supposing a certain degree of experience in human affairs, of rational self-government, and of habitual obedience to good rules of action, to be already established in the pupil's mind, the theory of ethics may then be unfolded to him with great advantage (i. 3). It is not meant to be implied that a man must have previously acquired the perfection of practical reason and virtue before he acquaints himself with ethical theory; but he must have proceeded a certain way towards the acquisition.

Ethics, as Aristotle conceives them, are a science closely analogous to if not a subordinate branch of Politics. (I do not however think that he employs the word Ἠθικὴ in the same distinct and substantive meaning as πολιτικὴ (ἐπιστήμη), although he several times mentions τὰ ἠθικὰ and ἠθικοὶ λόγοι.) Ethical science is for the individual what political science is for the community (i. 2).

In every variety of human action, in each separate art and science, the agents, individual or collective, propose to themselves the attainment of some *good* as the end and object of their proceedings. Ends are multifarious, and good things are multifarious: but good, under one shape or another, is always the thing desired by every one, and the determining cause of human action (οὗ πάντα ἐφίεται)—i. 1.

Sometimes the action itself, or the exercise of the powers implied in the action, is the end sought, without anything beyond. Sometimes there is an ulterior end, or substantive business, to be accomplished by means of the action and lying beyond it. In this latter class of cases, the ulterior end is the real good: better than the course of action used to accomplish it—"the external results are naturally (πέφυκε) better than the course of action" (i. 1). Taking this as a general position, it is subject to many exceptions: but the word πέφυκε seems to signify only that such is naturally and ordinarily the case, not that the reverse never occurs.

Again some ends are comprehensive and supreme; others, partial and subordinate. The subordinate ends are considered with reference to the supreme, and pursued as means to their

accomplishment. Thus the end of the bridle-maker is subservient to that of the horseman, and the various operations of war to the general scheme of the commander. The supreme, or *architectonic*, ends, are superior in eligibility to the subordinate, or *ministerial*, which, indeed, are pursued only for the sake of the former.

One end (or one *good*), as subordinate, is thus included in another end (or another good) as supreme. The same end may be supreme with regard to one end different from itself, and subordinate with regard to another. The end of the general is supreme with reference to that of the soldier or the maker of arms, subordinate with reference to that of the statesman. In this scale of comprehensiveness of ends there is no definite limit; we may suppose ends more and more comprehensive as we please, and we come from thence to form the idea of one most comprehensive and sovereign end, which includes under it every other without exception—with reference to which all other ends stand in the relation either of parts or of means—and which is itself never in any case pursued for the sake of any other or independent end. The end thus conceived is the *Sovereign Good of man*, or *The Good—The Summum Bonum*—Τἀγαθὸν—Τὸ ἄριστον—Τἀνθρώπινον ἀγαθόν (i. 2).

To comphehend, to define, and to prescribe means for realizing the Sovereign Good, is the object of *Political Science*, the paramount and most architectonic Science of all, with regard to which all other Sciences are simply ministerial. It is the business of the political ruler to regulate the application of all other Sciences with reference to the production of this his End—to determine how far each shall be learnt and in what manner each shall be brought into practice—to enforce or forbid any system of human action according as it tends to promote the accomplishment of his supreme purpose—the Sovereign Good of the Community. Strategical, rhetorical, economical, science, are all to be applied so far as they conduce to this purpose and no farther: they are all simply ministerial; political science is supreme and self-determining (i. 2).

What *Political Science* is for the community, *Ethical Science* is for the individual citizen. By this it is not meant that the individual is to be abstracted from society or considered as living apart from society: but simply that human action and human feeling is to be looked at from the point of view of the individual, mainly and primarily—and from the point of view of the society, only in a secondary manner: while in political science, the reverse is the case—our point of view is, first as regards the

society;—next, and subordinate to that, as regards the individual citizen (*See* Eth. Nic. vii. 8).

The object of the Ethical Science is, the Supreme Good of the individual citizen—the End of all Ends, with reference to his desires, his actions, and his feelings—the end which he seeks for itself and without any ulterior aim—the end which comprehends all his other ends as merely partial or instrumental and determines their comparative value in his estimation (i. 2, i. 4).

It is evident that this conception of an End of all Ends is what Kant would call an *Idea*—nothing precisely conformable to it, in its full extent, can ever exist in reality. No individual has ever been found, or ever will be found, with a mind so trained as to make every separate and particular desire subservient to some general preconceived End however comprehensive. But it is equally certain that this subordination of Ends one to another is a process performed to a greater or less degree in every one's mind, even in that of the rudest savage. No man can blindly and undistinguishingly follow every immediate impulse: the impulse, whatever it be, when it arises, must be considered more or less as it bears upon other pursuits and other objects of desire. This is an indispensable condition even of the most imperfect form of social existence. In civilized society, we find the process carried very far indeed in the minds of the greater number of individuals. Every man has in his view certain leading Ends, such as the maintenance of his proper position in society, the acquisition of professional success, the making of his fortune, the prosecution of his studies, &c., each of which is essentially paramount and architectonic, and with reference to which a thousand other ends are simply subordinate and ministerial. Suppose this process to be pushed farther, and you arrive at the idea of an End still more comprehensive, embracing every other end which the individual can aspire to, and forming the central point of an all-comprehensive scheme of life. Such a maximum, never actually attainable, but constantly approachable, in reality, forms the Object of Ethical Science. *Quorsum victuri gignimur?*

What is the Supreme Good—the End of all Ends? How are we to determine wherein it consists, or by what means it is to be attained—at least, as nearly attained as the limitations of human condition permit? Ethical Science professes to point out what the end ought to be—Ethical precepts are suggestions for making the closest approaches to it which are practicable. Even to understand what the end is, is a considerable acquisition: since we thus know the precise point to aim at, even if we cannot hit it (i. 2).

The approaches which different men make towards forming this idea, of an End of Ends or of a Supreme Good, differ most essentially: although there seems a verbal agreement between them. Every man speaks of *Happiness* as his End of Ends (ὀνόματι ὁμολογεῖται, i. 4): he wishes to live well or to do well, which he considers to be the same as being happy. But men disagree exceedingly in their opinions as to that which constitutes happiness: nay the same man sometimes places it in one thing, sometimes in another—in health or in riches, according as he happens to be sick or poor.

There are however three grand divisions, in one or other of which the opinions of the great majority of mankind may be distributed. Some think that happiness consists in a life of bodily pleasure (βίος ἀπολαυστικός): others, in a life of successful political action or ambition (βίος πολιτικός): others again, in a life of speculative study and the acquisition of knowledge (βίος θεωρητικός). He will not consent to number the life of the (χρηματιστὴς) money-maker among them because he attains his end at the expense of other people and by a force upon their inclinations (this at least seems the sense of the words—ὁ γὰρ χρηματιστὴς βίαιός τίς ἐστι), and because wealth can never be *the good*, seeing that it is merely useful for the sake of ulterior objects.

(The reason which Aristotle gives for discarding from his catalogue the life of the *money-seeker*, while he admits that of the *pleasure-seeker* and the *honour-seeker*, appears a very inconclusive one. He believed them to be all equally mistaken in reference to real happiness: the two last just as much as the first: and certainly, if we look to prevalence in the world and number of adherents, the creed of the first is at least equal to that of the two last.)

The first of the three is the opinion of the mass, countenanced by many Sovereigns such as Sardanapalus—it is more suitable to animals than to men, in the judgment of Aristotle (i. 5).

Honour and glory—the reward of political ambition, cannot be the sovereign good, because it is a possession which the person honoured can never be sure of retaining: for it depends more upon the persons by whom he is honoured than upon himself, while the ideas which we form of the sovereign good suppose it to be something intimately belonging to us and hard to be withdrawn (i. 5). Moreover those who aspire to honour, desire it not so much on its own account as in order that they may have confidence in their own virtue: so that it seems even in their estimation as if virtue were the higher aim of the two. But

even virtue itself (meaning thereby the simple possession of virtue as distinguished from the active habitual exercise of it) cannot be the sovereign good: for the virtuous man may pass his life in sleep or in inaction—or he may encounter intolerable suffering and calamity (i. 5).

Besides, Happiness as we conceive it, is an End perfect, final, comprehensive and all-sufficient—an end which we always seek on its own account and never with a view to anything ulterior. But neither honour, nor pleasure, nor intelligence, nor virtue, deserves these epithets: each is an end special, insufficient, and not final—for each is sought partly indeed on its own account, but partly also on account of its tendency to promote what we suppose to be our happiness (i. 7). The latter is the only end always sought exclusively for itself: including as it always does and must do, the happiness of a man's relatives, his children and his countrymen, or of all with whom he has sympathies; so that if attained, it would render his life desirable and wanting for nothing—*ὃ μονούμενον, αἱρετὸν ποιεῖ τὸν βίον, καὶ μηδενὸς ἐνδεᾶ* (i. 7).

The remark which Aristotle here makes in respect to the final aim or happiness of an individual—viz., that it includes the happiness of his family and his countrymen and of those with whom he has sympathies—deserves careful attention. It shows at once the largeness and the benevolence of his conceptions. We arrive thus at the same end as that proposed by political science—the happiness of the community: but we reach it by a different road, starting from the point of view of the individual citizen.

Having shown that this Happiness, which is "our being's end and aim," does not consist in any special acquisition such as pleasure, or glory, or intelligence, or virtue, Aristotle adopts a different method to show wherein it does consist. Every artist and every professional man (he says—i. 7), the painter, the musician, &c., has his peculiar business to do, and the *Good* of each artist consists in doing his business well and appropriately. Each separate portion of man, the eye, the hand and the foot, has its peculiar function: and in analogy with both these, man as such has his business and function, in the complete performance of which human Good consists. What is the business and peculiar function of Man, as Man? Not simply Life, for that he has in common with the entire vegetable and animal world: nor a mere sensitive Life, for that he has in common with all Animals: it must be something which he has, apart both from plants and animals—viz., an active life in conformity

with reason (πρακτική τις τοῦ λόγον ἔχοντος); or the exercise of Reason as a directing and superintending force, and the exercise of the appetites, passions, and capacities, in a manner conformable to Reason. This is the special and peculiar business of man: it is what every man performs either well or ill: and the *virtue* of a man is that whereby he is enabled to perform it well. The Supreme Good of humanity, therefore, consisting as it does in the due performance of this special business of man, is to be found in the virtuous activity of our rational and appetitive soul: assuming always a life of the ordinary length, without which no degree of mental perfection would suffice to attain the object. The full position will then stand thus—"Happiness, or the highest good of a human being, consists in the working of the soul and in a course of action, pursuant to reason and conformable to virtue, throughout the full continuance of life."

(The argument respecting a man's proper business (ἔργον) and virtue (ἀρετὴ) seems to be borrowed from Plato—Republic, i. c. 23, p. 352; c. 24, p. 353. Compare also Xenophon—Memorabilia, iv. 2, 14.)

This explanation is delivered by Aristotle as a mere outline, which he seems to think that any one may easily fill up (i. 7). And he warns us not to require a greater degree of precision than the subject admits of: since we ought to be content with a rough approximation to the truth, and with conclusions which are not universally true, but only true in the majority of instances, such being the nature of the premisses with which we deal (i. 3).

Having determined in this manner what Happiness or the Supreme Good consists in, Aristotle next shows that the explanation which he gives of it conforms in a great degree to the opinions previously delivered by eminent philosophers, and fulfils at least all the requisite conditions which have ever been supposed to belong to Happiness (i. 8). All philosophers have from very early times agreed in distributing good things into three classes—*Mental, Corporeal,* and *External.* Now the first of these classes is incomparably the highest and most essentially *good* of the three: and the explanation which Aristotle gives of happiness ranks it in the first class.

Again, various definitions of happiness have been delivered by eminent authorities more or less ancient (πολλοὶ καὶ παλαιοί). Eudoxus laid down the principle that happiness consists in pleasure: others have maintained the opinion that it is entirely independent both of pleasure and pain—that the former is no

good, and the latter no evil (i. 12, vii. 11-13, x. 1. 2). Some have placed happiness in virtue: others in prudence: others in a certain sort of wisdom (σοφία τις): others have added to the definition this condition, that pleasure or external prosperity should be coupled with the above-mentioned objects (i. 8). The moral doctrines propounded by Zeno and Epicurus were therefore in no way new: how far the reasonings by which these philosophers sustained them were new we cannot judge accurately, from the loss of the treatises of Eudoxus and others to which Aristotle makes reference.

Now, in so far as virtue is introduced, the explanation of Happiness given by Aristotle coincides with these philosophers and improves upon them by substituting the active exercise of virtuous habits in place of the mere possession of virtue. And in regard to pleasure, the man who has once acquired habits of virtuous agency stands in no need of pleasure from without, as a foreign accessory: for he finds pleasure in his own behaviour, and he would not be denominated virtuous unless he did so: "Now (he says) their life stands in no need of pleasure, like an extraneous appendage, but has pleasure in itself" (ii. 8). Again, ii. 3, he says that "the symptom of a perfect habit is the pleasure or pain which ensues upon the performance of the acts in which the habit consists: for the man who abstains from bodily pleasures and rejoices in doing so, is temperate, while he who does it reluctantly and painfully, is intemperate. And the man who sustains dangers with pleasure, or at least without pain, is courageous: if with pain, he is a coward. For ethical virtue has reference to our pleasures and pains: it is on account of pleasure that we commit vicious acts, and on account of pain that we shrink from virtuous performances. Wherefore, as Plato directs, we ought to be trained at once from our infancy by some means or other so as to feel pleasure and pain from the proper sources: for that is the right education."

Moreover, the man who is in the active exercise of virtue derives his pleasure from the performance of that which is the appropriate business of humanity, so that all his pleasures are *conformable to the pleasures natural to man* and therefore consistent with each other: whereas the pleasures of most people are contradictory and inconsistent with each other, because they are not conformable to our nature (i. 8).

It is not easy to understand perfectly what Aristotle means by saying that the things agreeable to the majority of mankind are not things agreeable by nature. The construction above put upon this expression seems the only plausible one—that

those pleasures which inhere in the performance of the appropriate business of man, are to be considered as our natural pleasures; those which do not so inhere, as not natural pleasures: inasmuch as they arise out of circumstances foreign to the performance of our appropriate business.

This however hardly consists with the explanation which Aristotle gives of τὸ φύσει—in another place and with reference to another subject. In the Magna Moralia (i. 34, pp. 1194-1195 Bek.), in distinguishing between *natural* justice (τὸ δίκαιον φύσει) and *conventional* justice (τὸ δίκαιον νόμῳ), he tells us that *the naturally just* is that which most commonly remains just. (Similarly Ethic. Eudem. iv. 14, p. 1217 Bek.) That which exists by nature (he says) may be changed by art and practice; the left hand may by these means be rendered as strong as the right in particular cases, but if in the greater number of cases and for the longer portion of time the left remains left and the right remains right, this is to be considered as existing by nature.

If we are to consider that arrangement as *natural* which we find to prevail in the greatest number of cases and for the greatest length of time, then undoubtedly the pleasures arising out of virtuous active behaviour must be regarded as less natural than those other pleasures which Aristotle admits to form the enjoyment of the majority of mankind.

But again there is a third passage, respecting nature and natural arrangements, which appears scarcely reconcilable with either of the two opinions just noticed. In Eth. Nicom. ii. 1: "Ethical virtue is a result of habit, whence it is evident that not one of the ethical virtues exists in us by nature. For none of those things which exist by nature is altered by habit. For example, the stone which naturally moves downwards cannot be habituated to move upwards, not even if a man should endeavour so to habituate it by throwing it upwards ten thousand times; nor in like manner fire downwards: nor can any other of the things formed by nature in one way be changed by habit to any other than that natural way. Virtues therefore are not generated in us either *by* nature, or *contrary* to nature; but we are formed by nature so as to be capable of receiving them, and we are perfected in them through the influence of habit."

If it be true that nothing which exists in one manner by nature can be changed by habit so as to exist in another manner, I do not see how the assertion contained in the passage above cited out of the Magna Moralia can be reconciled with it, where we are told—"For even things which exist *by nature partake of change*. Thus if we all should practise throwing with the left

hand, we should become ambidextrous: but still it is the left hand by nature, and the right hand is not the less better by nature than the left, although we should do everything with the left as we do with the right." (Mag. Mor. i. 34, *ut sup.*) In the one case he illustrates the meaning of natural properties by the comparative aptitudes of the right and left hand: in the other by the downward tendency of the stone. The idea is plainly different in the one case and in the other.

On the other hand, there seems to be not less variance between the one passage quoted out of the Nicomacheian Ethics and the other. For in the passage last quoted, we are told that none of the ethical virtues is generated in us by nature—neither by nature, nor contrary to nature: nature makes us fit to receive them, habit introduces and creates them—an observation perfectly true and accurate. But if this was the sentiment of Aristotle, how could he also believe that the pleasures arising out of the active manifestation of ethical virtue were the natural pleasures of man? If ethical virtue does not come by nature, the pleasures belonging to it cannot come by nature either.

On the whole, these three passages present a variance which I am unable to reconcile in the meaning which Aristotle annexes to the very equivocal word—*nature.*

Although Aristotle tells us that the active exercise of the functions of the soul according to virtue confers happiness, yet he admits that a certain measure of external comfort and advantages must be superadded as an indispensable auxiliary and instrument. Disgusting ugliness, bad health, low birth, loss of friends and relatives or vicious conduct of friends and relatives, together with many other misfortunes, are sufficient to sully the blessed condition of the most virtuous man (ῥυπαίνουσι τὸ μακάριον—i. 8)—for which reason it is that some persons have ranked both virtue and good fortune as co-ordinate ingredients equally essential to happiness: and have doubted also whether it can ever be acquired either by teaching, or by training, or by any other method except chance or Divine inspiration. To suppose that so magnificent a boon is conferred by chance, would be an absurdity: it is a boon not unworthy indeed of the Divine nature to confer; but still the magnificence of it will appear equally great and equally undeniable, if we suppose it to be acquired by teaching or training. And this is really the proper account to give of the way in which Happiness is acquired: for the grand and primary element in it, is the virtuous agency of the soul, which is undoubtedly acquired by training: while external advantages, though indispensable up to a certain

limit, are acquired only as secondary helps and instruments. The creation of these virtuous habits among the citizens is one of the chief objects of political science and legislation: when once acquired, they are the most lasting and ineffaceable of all human possessions: and as they are created by special training, they may be imparted to every man not disqualified by some natural defect of organization, and may thus be widely diffused throughout the community (i. 9).

This is an important property. If happiness be supposed to be derived from the possession of wealth or honour or power, it can only be possessed by a small number of persons. For these three considered as objects of human desire, are essentially comparative. A man does not think himself rich, or honoured, or powerful, unless he becomes so to a degree above the multitude of his companions and neighbours.

Aristotle insists most earnestly that the only way of acquiring the character proper for happiness is by a course of early and incessant training in virtuous action. Moral teaching, he says, will do little or nothing, unless it be preceded by, or at least coupled with, moral training. Motives must be applied sufficient to ensure performance of what is virtuous and abstinence from what is vicious, until such a course of conduct becomes habitual, and until a disposition is created to persevere in them. It is the business of the politician and the legislator to employ their means of working upon the citizens for the purpose of enforcing this training. It is not with virtue (he says) as it is with those faculties which we receive ready-made from nature, as for example, the external senses. We do not acquire the faculty of sight by often seeing, but we have it from nature and then exercise it: whereas with regard to virtue, we obtain our virtues by means of a previous course of virtuous action, just as we learn other arts. For those things which we must learn in order to do, we learn by actually doing: thus by building we become builders, and by harping we become harpers: by doing just and temperate and courageous actions, we become just and temperate and courageous. All legislators try, some in a better and others in a worse manner, to *ethise* (ἐθίζοντες)—to create habits among—the citizens for the purpose of making them good. "In one word habits are created by repeated action, wherefore our actions must be determined in a suitable way, for according as they differ, so will our habits differ. Nor is the difference small whether we are *ethised* in one way or in another, from our youth upwards: the difference is very great, or rather it *is everything*" (ii. 1).

Neither an ox, nor a horse, can acquire such habits, and therefore neither of them can be called happy: even a child cannot be called so, except from the hope and anticipation of what he will become in future years.

It may appear somewhat singular that Aristotle characterises a child as incapable of happiness, since in common language a child when healthy and well treated is described as peculiarly happy. But happiness, as Aristotle understands it, is something measured more by the estimate of the judicious spectator than by the sentiment of the man in whose bosom it resides. No person is entitled to be called *happy*, whom the intelligent and reflective observer does not *macarise* (or *endæmonise*), or whose condition he would not desire more or less to make his own. Now the life of a child, even though replete with all the enjoyments belonging to childhood, is not such as any person in the state of mind of a mature citizen could bring himself to accept (i. 10, x. 3). The test to which Aristotle appeals, either tacitly or openly, seems always to be the judgment of the serious man (i. 8, x. 5). It is no sufficient proof of happiness that the person who feels it is completely satisfied with his condition and does not desire anything beyond. Such self-satisfaction is indeed necessary, but is not by itself sufficient: it must be farther confirmed by the judgment of persons without—not of the multitude, who are apt to judge by a wrong standard—nor of princes, who are equally incompetent, *and who have never tasted the relish of pure and liberal pleasures* (x. 6)—but of the virtuous and worthy, who have arrived at the most perfect condition attainable by human beings (x. 5, x. 6, x. 8).

The different standard adopted by the many and by the more discerning few, in estimating human happiness, is again touched upon in Politica, vii. 1. It is in some respects treated more clearly and simply in this passage than in the Ethics. Both the Many and the Few (he says) agree that in order to constitute Happiness, there must be a coincidence of the three distinct kinds of Good things—The Mental—The Corporeal—The External. But with respect to the proportions in which the three ought to be intermingled, a difference of opinion arises. Most persons are satisfied with a very moderate portion of mental excellence, while they are immoderate in their desire for wealth and power ("For of virtue they think that they have a sufficiency, whatever be the quantity they have; but of wealth and possessions they seek the excess without bound."—Pol. vii. 1). On the other hand, the opinion sanctioned by the few of a higher order of mind, and adopted by Aristotle, was, that Happiness

was possessed in a higher degree by those who were richly set forth with moral and intellectual excellence and only moderately provided with external advantages, than by those in regard to whom the proportion was reversed (*ib.*). The same difference of estimate, between the few and the many, is touched upon Polit. vii. 13, where he says that men in general esteem external advantages to be the causes of happiness: which is just as if they were to say that the cause why a musician played well was his lyre, and not his proficiency in the art.

In this chapter of the Politica (vii. 13), he refers to the Ethica in a singular manner. Having stated that the point of first importance is, to determine wherein happiness consists, he proceeds to say—"We have said also in the Ethics, *if there be any good in that treatise* (εἴ τι τῶν λόγων ἐκείνων ὄφελος), that it (happiness) is the active exertion and perfected habit of virtue."—This is a singular expression—"if there be any good in the Ethics"—it seems rather to fall in with the several passages in that treatise in which he insists upon the inherent confusion and darkness of the subject-matter.

The definition of what happiness really is seems to be one of the weak points of Aristotle's treatise. In a work addressed to the public, it is impossible to avoid making the public judges of the pleasure and pain, the happiness and unhappiness of individuals. A certain measure of self-esteem on the part of the individual, and a certain measure of esteem towards him on the part of persons without, come thus to be regarded as absolutely essential to existence. Without these, life would appear intolerable to any spectator without, though the individual himself might be degraded enough to cling to it. But these are secured by the ordinary morality of the age and of the locality. The question arises as to degrees of virtue beyond the ordinary level: Are we sure that such higher excellence contributes to the happiness of the individual who possesses it? Assuming that it does so contribute, are we certain that the accession of happiness which he thereby acquires is greater than he would have acquired by an increase of his wealth and power, his virtue remaining still at the ordinary level? These are points which Aristotle does not establish satisfactorily, although he professes to have done so: nor do I think that they are capable of being established. The only ground on which a moralist can inculcate aspirations after the higher degrees of virtue, is, the gain which thereby accrues to the happiness of others, not to that of the individual himself.

Aristotle appeals to God as a proof of the superiority of an

internal source of happiness to an external source—vii. 1, "using God as a witness who is happy and blessed, yet not through any external good, but through Himself and from His own nature." Again, vii. 3, "For at leisure God would be happy, and the whole universe (κόσμος), who have no external actions except such as are proper to themselves"—in proof of the superiority of a life of study and speculation to a life of ambition and political activity. The same argument is insisted upon in Eth. Nic. x. 8. It is to be observed that the Κόσμος as well as God is here cited as experiencing happiness.

The analogy to which Aristotle appeals here is undoubtedly to a certain extent a just one. The most perfect happiness which we can conceive—our Idea, to use Kant's phrase, of perfect happiness—is that of a being who is happy in and for his own nature, with the least possible aid from external circumstances—a being whose nature or habits dispose him only to acts, the simple performance of which confers happiness. But is this true of the perfectly virtuous nature and habits? Does the simple performance of the acts to which they dispose us, always confer happiness? Is not the existence of a very high standard of virtuous exigency in a man's mind, a constant source of self-dissatisfaction, from the difficulty of acting up to his own ideas of what is becoming and commendable?

That the most virtuous nature is in itself and essentially the most happy nature, is a point highly questionable—to say the least of it: and even if we admit the fact, we must at the same time add that it cannot appear to be so to ordinary persons without. The internal pleasures of a highly virtuous man cannot be properly appreciated by any person not of similar character. So that unless a person be himself disposed to believe it, you could find no means of proving it to him. To a man not already virtuous, you cannot bring this argument persuasively home for the purpose of inducing him to become so.

In regard to prudence and temperance, indeed, qualities in the first instance beneficial to himself, it is clear that the more perfectly he possesses them, the greater and more assured will be his happiness. But in regard to virtuous qualities, beneficial in the first instance to others and not to himself, it can by no means be asserted that the person who possesses these qualities in the highest degree is happier than one who possesses them in a more moderate and ordinary degree.

Aristotle indeed says that *the being just* necessarily includes the having pleasure in such behaviour: for we do not call a man just or liberal unless he has a pleasure in justice or liberality

(Eth. Nic. i. 8). But this does not refute the supposition, that another man, less just or liberal than he, may enjoy *greater happiness* arising out of other tastes and other conduct.

In order to sustain the conclusion of Aristotle respecting the superior happiness of the virtuous man, it is necessary to assume that the pleasures of self-esteem and self-admiration are generically distinguished from other pleasures and entitled to a preference in the eyes of every right judging person. And Aristotle does seem to assume something of this nature. He says—x. 3—"Or that pleasures differ in kind? For the pleasures arising from the honourable are different from those arising from the base; and it is not the case that the unjust man experiences the pleasure of the just, or he that is unmusical that of the musician." The inherent difference between various pleasures is again touched upon x. 5—"And since the functions differ in goodness and badness—some of them being objects of desire, others of them to be eschewed, and others of them neither—so is it likewise with the pleasures: for each function has its own pleasures. The pleasure then that is proper to the function of good is good, and that which is proper to the function of bad is bad; for the desires of things honourable are praiseworthy, those of things base are to be blamed. And the pleasures attaching to them are more proper to the functions than are the appetencies themselves." In the next chapter, in that remarkable passage where he touches upon the predilections of men in power for the society of jesters and amusing companions ("The many have recourse to the amusements of those that are accounted happy")—"For it is not in kingly power that you find either virtue or intellect, on which the higher functions of man depend. Nay, not if princes *who have never tasted the relish of pure and liberal pleasure*, have recourse to the pleasures of the body, on which account these must be thought the more desirable. For children consider those things to be best that are held in honour among themselves."

Here we have a marked distinction drawn between the different classes of pleasures—some being characterised as good, some bad, some indifferent. The best of all are those which the virtuous man enjoys, and which *he* considers the best: the pleasures inseparably annexed to virtuous agency. These pleasures are thus assumed to be of a purer and more exalted character, and to deserve a decided preference over every other class of pleasures. And if this be assumed, the superior happiness of the virtuous man follows as a matter of course.

I should observe that Aristotle considers happiness to consist in the exercise of the faculties agreeably to virtue (ἐνέργεια κατ' ἀρετὴν)—the *pleasure* (ἡδονὴ) is something different from the exercise (ἐνέργεια)—inseparably attending it, indeed, yet not the same—"conjoined with the functions (ἐνεργείαις), and the two are so inseparable as to raise a question whether the function is not identical with the pleasure" (x. 5). And he says, x. 7—"We think that pleasure should be mixed up (παραμεμίχθαι) with happiness."

It seems to be in the sense of self-esteem, which constitutes the distinctive mark of virtuous agency, that Aristotle supposes happiness to consist: the pleasure he supposes to be an inseparable concomitant, but yet not the same. The self-esteem is doubtless often felt in cases where a man is performing a painful duty—where the sum total of feelings accompanying the performance of the act is the very reverse of pleasurable. But still the self-esteem, or testimony of an approving conscience, is *per se* always pleasurable, and is in fact the essential pleasure inherent in virtuous behaviour. I do not see the propriety of the distinction here taken by Aristotle. He puts it somewhat differently, Polit. vii. 1—"Living happily consists either in joy or in virtue to men, or in both." And Polit. viii. 5—"For happiness is a compound of both these (honour and pleasure)." So Polit. viii. 3.

Happiness (again he says—Polit. vii. 13, p. 440 E. p. 286) consists in the perfect employment and active exercise of virtue: and that *absolutely* (or under the most favourable external conditions)—not under limitation (ἐξ ὑποθέσεως) or subject to very trying and difficult circumstances. For a man of virtue may be so uncomfortably placed that he has no course open to him except, a choice of evils, and can do nothing but make the best of a bad position. Such a man will conduct himself under the pressure of want or misfortune as well as his case admits: but happiness is out of his reach. (Compare Eth. Nic. i. 10.) To be happy, it is necessary that he should be so placed as to be capable of aspiring to the accomplishment of positive good and advantage—he must be admitted to contend for the great prizes, and to undertake actions which lead to new honours and to benefits previously unenjoyed: he must be relieved from the necessity of struggling against overwhelming calamities.

Aristotle tells us in the beginning of the Ethics (Eth. Nic. i. 3)—"But there is so much difference of opinion and so much error respecting what is honourable and just, of which political science treats, that these properties of human action seem to

exist merely by positive legal appointment, and not by nature. And there is the same sort of error respecting what things are good." If there be this widespread error and dissension among mankind with respect to the determining of what is good and just, what standard has Aristotle established for the purpose of correcting it? I do not find that he has established any standard, nor even that he has thought it necessary to make the attempt. There are indeed a great number of observations, and many most admirable observations in his Treatise, on the various branches of Virtue and Vice: many which tend to conduct the mind of the reader unconsciously to the proper standard: but no distinct announcement of any general principle, whereby a dispute between two dissentient moralists may be settled. When he places virtue in a certain mediocrity between excess on one side and defect on the other, this middle point is not in any way marked or discoverable: it is a point not fixéd, but variable according to the position of the individual agent, and is to be determinable in every case by right reason and according to the judgment of the prudent man—"in the mean *with reference to ourselves*, as *it has been determined by reason*, and *as the prudent man* (ὁ φρόνιμος) *would determine it*" (Eth. Nic. ii. 6). But though the decision is thus vested in the prudent man, no mention is made of the principle which the appointed arbiter would follow in delivering his judgment, assuming a dispute to arise.

In a previous part of Chapter II., he defines "the mean with reference to ourselves" to be "that which neither exceeds, nor falls short of, *the rule of propriety* (τοῦ δέοντος). But this is not one, nor is it the same to all."

To render this definition sufficient and satisfactory, Aristotle ought to have pointed out to us how we are to find out that *rule of propriety* (τὸ δέον) which marks and constitutes the medium point, of actions and affections, *in relation to ourselves*—this medium point being in his opinion *virtue*. To explain what is meant by a medium *in relation to ourselves*, by the words τὸ δέον, *the rule of propriety*, is only a change of language, without any additional information.

Thus the capital problem of moral philosophy still remains unsolved.

It is remarkable that Aristotle in some parts of his treatise states very distinctly what this problem is, and what are the points essential to its solution: he speaks as if he were fully aware of that which was wanting to his own treatise, and as if he were preparing to supply the defect: but still the promise is

never realized. Take for example the beginning of Book VI. Eth. Nic.

"Since it has been already laid down, that we ought to choose the middle point and not either the excess or the defect—and since the middle point is that which right reason determines—let us distinguish what that is. For in all the mental habits which have been described, as well as in all others also, there is a certain aim, by a reference to which the rational being is guided either in relaxing or in restricting: and there is a certain definite boundary of those medial points, which we affirm to exist between excess and defect, determinable according to right reason. To speak thus, however, is indeed correct enough, but it gives no distinct information (οὐθὲν δὲ σαφές): for in all other modes of proceeding which are governed by scientific principles it is quite just to say that you ought neither to work nor to rest more than is sufficient nor less than is sufficient, but to a degree midway between the two and agreeably to right reason. But a man who has only this information would be no wiser than he was before it, any more than he would know what things he ought to apply to his body, by being simply told that he must apply such things as medical science and as the medical practitioner directed. Wherefore, with respect also to the habits of the soul we must not be content with merely giving a general statement in correct language, but we must farther discriminate what right reason is, and what is its definition."

This is a very clear and candid statement of the grand and fundamental defect in Aristotle's theory of Ethics. He says very truly that "there is a certain end and aim (σκόπος), to which a rational being has reference when he either restricts or relaxes any disposition." It was incumbent on Aristotle to explain what this σκόπος was; but this he never does, though he seems so clearly to have felt the want of it. We might have supposed that after he had pointed out what was required to impart specific meaning to correct but vague generalities, he would have proceeded at once to fill up the acknowledged chasm in his theory: but instead of this, he enters into an analysis of the intellect, speculative and practical, and explains the varieties of intellectual, as contradistinguished from moral, excellence. This part of his work is highly valuable and instructive: but I cannot find that he ever again touches upon the σκόπος, which had been admitted to be as yet undetermined. In a certain sense, it is indeed true that he endeavours "to discriminate what right reason is, and what is its definition:" for he classifies the intellectual functions into intellect (νοῦς), science (ἐπιστήμη), wisdom

(σοφία), art (τέχνη), prudence (φρόνησις): he states the general nature of each of these attributes, and the range of subjects to which it applies. He tells us that intellect and prudence have reference to human conduct—that prudence is "concerned with things just and honourable and good for man" (vii. 12)—"with the things of man, and those things regarding which we deliberate" (vii. 7)—"prudence must needs be a true habit according to reason, concerned with the good of man" (vii. 5). In explaining what prudence is, he tells us that it is *according to reason:* in explaining what is *right reason*, he tells us that it is *according to prudence.* He thus seems to make use of each as a part of the definition of the other. But however this may be, certain it is that he never fulfils the expectation held out in the beginning of the Sixth Book, nor ever clears up the οὐδὲν σαφὲς there acknowledged.

There is one sentence at the beginning of vi. 5, which looks as if it conveyed additional information upon the difficulty in question—"Now it seems to belong to the prudent man to be able to deliberate aright concerning the things that are good and profitable to himself—not in part, as concerning the things that have a reference to health or strength—but concerning the things that refer to the whole of *living well*" (πρὸς τὸ εὖ ζῆν). But this in point of fact explains nothing. For *living well* is the same as *happiness:* happiness is *the active exercise of the soul according to virtue:* therefore *virtue* must be known, before we can know what *living well* is.

I think that this σκόπος or end, which Aristotle alludes to in the beginning of the Sixth Book as not having been yet made clear, appears to be more distinctly brought out in a previous passage than it is in any portion of the Treatise after the beginning of the Sixth Book. In Book IV. 6, Aristotle treats of the virtues and defects connected with behaviour in social intercourse: the *obsequious* at one extreme, the *peevish* or *quarrelsome* at the other: and the becoming medium, though it had no special name, which lay between them. Speaking of the person who adopts this becoming medium, he says—"We have said generally, then, that he will associate with people as he ought; and having, moreover, a constant reference to what is honourable and what is expedient, he will aim at not giving pain or at contributing pleasure."

Again in regard to Temperance—iii. 11—he states the σκόπος of the temperate man—"What things have a reference to health or vigour, and are agreeable, these he desires in measure and as he ought; as well as the other agreeable things that are not

opposed to these, either as being contrary to what is honourable or as being beyond his fortune. For he that desires things agreeable, which yet are contrary to what is honourable or beyond his fortune, loves these pleasures more than they are worth. But not so with the temperate man who lives according to right reason."

These passages are not very distinct, as an explanation of the proper σκόπος: but I cannot find any passages after the beginning of the Sixth Book which are more distinct than they: or perhaps, equally distinct.

In one passage of the Seventh Book, Aristotle refers, though somewhat obscurely, to the average degree of virtue exhibited by the mass of mankind as the standard to be consulted when we pronounce upon excess or defect (vii. 7).

Aristotle seems in some passages to indicate pleasure and pain as the end with reference to which actions or dispositions are denominated *good* and *evil*. He says—vii. 11—"To theorise respecting pleasure and pain, is the business of the political philosopher: for he is the architect of that end with reference to which we call each matter either absolutely good or absolutely evil. Moreover, it is indispensable to institute an enquiry respecting them: for we have explained ethical virtue and vice as referring to pleasures and pains: and most people affirm happiness to be coupled with pleasure: for which reason they have named τὸ μακάριον ἀπὸ τοῦ χαίρειν."

In Book VIII. 9–10, the σκόπος is indeed stated very clearly, but *not as such*—not as if Aristotle intended to make it serve as such, or thought that it ought to form the basis upon which our estimate of what is the proper middle point should be found. In viii. 9-10, he tells us that all justice and benevolence (τὸ δίκαιον καὶ ἡ φιλία) is a consequence and an incident of established communion among human beings (κοινωνία)—that the grand communion of all, which comprehends all the rest, is the *Political Communion*—that the end and object of the *Political Communion*, as well that for which it was originally created as that for which it subsists and continues, is *the common and lasting advantage* (τὸ κοινῇ σύμφερον)—that all other communions, of relations, friends, fellow-soldiers, neighbours, &c., are portions of the all-comprehensive political communion, and aim at realizing some partial advantage to the constituent members. These chapters are very clear and very important, and they announce plainly enough *the common and lasting interest* as the foundation and measure of justice as well as of benevolence. But they do not apply the same measure, to the qualities which

had been enumerated in the Books prior to the Sixth, as a means of ascertaining where the middle point is to be found which is alleged to constitute virtue. Nevertheless, Aristotle tells us that it is in the highest degree difficult to find the middle point which constitutes virtue (ii. 9).

It might seem at first sight not easy for Aristotle, consistently with the plan of his treatise, to point out any such standard or measure. For none can be mentioned, with any tolerable pretensions to admissibility, except that of *tendency to promote happiness*—the happiness both of the individual agent and of the society to which he belongs. But as he had begun by introducing the ideas of reason and virtue as media for explaining what happiness was, there would have been at least an apparent incongruity in reverting back to the latter as a means of clearing up what was obscure in the former. I say—*at least an apparent incongruity*—because after all the incongruity is more apparent than real. If we carefully preserve the distinction between the happiness of the individual agent and the happiness of the Society to which he belongs, it will appear that Aristotle might without any inconsistency have specified the latter as being the object to which reason has regard, in regulating and controlling the various affections of each individual.

Wherein consists the happiness of an individual man? In a course of active exertion of the soul conformably to virtue: *virtue* being understood to consist in a certain mediocrity of our various affections as determined by *right reason*.

When we next enquire, to what standard does *right reason* look in making this determination? it may without inconsistency be answered—*Right reason* determines the proper point of mediocrity by a reference to *happiness generally*—that is, to the happiness of society at large, including that of the individual agent in question—in other words, to *the common and lasting advantage*, which Aristotle describes as the grand object of the statesman. There is no inconsistency in reverting to happiness, thus explained, as the standard by which right reason judges in controlling our different affections.

In all moral enquiries, it is of the greatest importance to keep in view the happiness of the individual, and the happiness of the society at large, as two distinct and separate objects—which coincide indeed ὡς ἐπὶ τὸ πολύ, in the majority of instances and with regard to the majority of individuals—but which do not coincide necessarily and universally, nor with regard to every individual. A particular man may be placed in such a position, or animated with such feelings, that his happiness may be

promoted by doing what is contrary to the happiness of the society. He will under these circumstances do what is *good* for himself but *bad* for others: he will do what is morally wrong, and will incur the blame of society. In speaking of *good* and *evil* it is always necessary to keep in mind, that what is *good* for an individual may be *bad* for the society: I mean, understanding the words *good for an individual* in the most comprehensive sense, as including all that he has to suffer from the unfavourable sentiments of society. Much confusion has arisen from moralists speaking of good and evil absolutely, without specifying whether they meant *good* for the individual or for the society: more particularly in the writings of the ancient philosophers.

From the manner in which Aristotle arrives at his definition of what constitutes happiness, we might almost suppose that he would have been led to the indication of the happiness of society at large as the standard for right reason to appeal to. For in examining what is the proper business of man in general, he has recourse to the analogy of the various particular arts and professions—the piper, the statuary, the carpenter, the carrier, &c. Each has his particular business and walk of action, and in the performance of that business consists *the good and the well* in his case (i. 7). So in like manner there is a special business for man in general, in the performance of which we are to seek human good.

Now this analogy of particular artists and professional men might have conducted Aristotle to the idea of the general happiness of society as a standard. For the business of every artist or artisan consists in conducing to the comfort, the protection, or the gratification of the public, each in his particular walk: professional excellence for them consists in accomplishing this object perfectly. For every special profession therefore the happiness of society at large, under one form or another, is introduced as the standard by which good and excellence are to be measured.

Apply this analogy to man in general, taken apart from any particular craft or profession. If each man, considered simply as such, has his appropriate business, in the good performance of which happiness for him consists, the standard of excellence in respect to such perforance is to be found in its conduciveness to the happiness of society at large. It can be found nowhere else, if we are to judge according to the analogy of special arts and professions.

Until this want of a standard or measure is supplied, it is clear

that the treatise of Aristotle is defective in a most essential point—a defect which is here admitted by himself in the first chapter of the Sixth Book. Nor is there any other way of supplying what is wanting except by reference to the general happiness of society, the end and object (as he himself tells us) of the statesman.

"What then," says Aristotle, "prevents our calling him happy who is in the active exercise of his soul agreeably to perfect virtue, and is sufficiently well furnished with external goods, not for a casual period but for a complete lifetime?" (i. 10). He thinks himself obliged to add, however, that this is not quite sufficient—for that after death a man will still be affected with sympathy for the good or bad fortunes and conduct of his surviving relatives, affected however faintly and slightly, so as not to deprive him of the title to be called *happy*, if on other grounds he deserves it. The deceased person sees the misfortunes of his surviving friends with something of the same kind of sympathetic interest, though less in degree, as is felt by a living person in following the representation of a tragedy (i. 11). The difference between a misfortune, happening during a man's life or after his death, is much greater than that between scenic representation of past calamities and actual reality (*ib.*).

It seems as if Aristotle was reluctantly obliged to make this admission—that deceased persons were at all concerned in the calamities of the living—more in deference to the opinions of others than in consequence of any conviction of his own. His language in the two chapters wherein he treats of it is more than usually hesitating and undecided: and in the beginning of Chapter XI., he says—"To have no interest whatever in the fortunes of their descendants and friends, seems exceedingly heartless and contrary to what we should expect"—he then, farther on, states it to be a great matter of doubt whether the dead experience either good or evil—but if anything of the kind does penetrate to them, it must be feeble and insignificant, so as to make no sensible difference to them.

II.

Aristotle distributes *good things* into three classes—the *admirable* or worshipful—the *praiseworthy*—the *potential*.

1. *Good*—as an End: that which is worthy of being honoured and venerated in itself and from its own nature, without regard

to anything ulterior: that which comes up to our idea of perfection.

2. *Good*—as a means: that which is good, not on its own account nor in its own nature, but on account of certain ulterior consequences which flow from it.

3. *Good*—as a means, but not a certain and constant means: that which produces *generally*, but *not always*, ulterior consequences finally good: that which, in order to produce consequences in themselves good, requires to be coupled with certain concomitant conditions.

1. *Happiness* belongs to the first of these classes: it is put along with *the divine, the better, soul, intellect, the more ancient, the principle, the cause*, &c. (Mag. Moral. i. 2). Such objects as these, we contemplate with awe and reverence.

2. *Virtue* belongs to the second of the classes: it is good from the acts to which it gives birth, and from the end (happiness) which those acts, when sufficiently long continued, tend to produce.

3. *Wealth, power, beauty, strength, &c.*, belong to the third class: these are generally *good* because under most circumstances they tend to produce happiness: but they may be quite otherwise, if a man's mind be so defectively trained as to dispose him to abuse them.

It is remarkable that this classification is not formally laid down and explained, but is assumed as already well known and familiar, in the Nicom. Ethics, i. 12: whereas it is formally stated and explained in the Magna Moralia, i. 2.

Praise, according to Aristotle, "does not belong to the best things, but only to the second-best. The Gods are to be *macarised*, not *praised:*" the praise of the Gods must have reference to ourselves, and must be taken in comparison with ourselves and our acts and capacities: and this is ridiculously degrading, when we apply it to the majesty of the Gods. In like manner the most divine and perfect men deserve to be macarised rather than praised. "No man praises happiness, as he praises justice, but *macarises* (*blesses*) it as something more divine and better."

Happiness is to be numbered amongst the perfect and worshipful objects—it is the ἀρχὴ for the sake of which all of us do everything: and we consider the principle and the cause of all good things to be something divine and venerable (i. 12).

Since then Happiness is the action of the soul conformably to perfect virtue, it is necessary to examine what human virtue

is: and this is the most essential mark to which the true politician will direct his attention (i. 13).

There are two parts of the soul—the rational and the irrational. Whether these two are divisible in fact, like the parts of the body, or whether they are inseparable in fact, and merely susceptible of being separately dealt with in reasoning, like the concavity and convexity of a circle, is a matter not necessary to be examined in the present treatise. Aristotle speaks as if he considered this as really a doubtful point.

Of the irrational soul, one branch is, the nutritive and vegetative faculty, common to man with animals and plants. The *virtue* of this faculty is not special to man, but common to the vegetable and animal world: it is in fact most energetic during sleep, at the period when all virtue special to man is for the time dormant (i. 13).

But the irrational soul has also another branch, the appetites, desires, and passions: which are quite distinct from reason, but may either resist reason, or obey it, as the case may happen. It may thus in a certain sense be said to partake of reason, which the vegetative and nutritive faculty does not in any way. The virtue of this department of the soul consists in its due obedience to reason, as to the voice of a parent (i. 13).

Human virtue, then, distributes itself into two grand divisions—1. The virtue of the rational soul, or Intellectual Virtue. 2. The virtue of the semi-rational soul, or Ethical Virtue.

Perhaps the word *Excellence* more exactly corresponds to ἀρετή, than *Virtue*.

Intellectual excellence is both generated and augmented by teaching and experience. Ethical excellence by practical training. The excellence is not natural to us: but we are susceptible of being trained, and the training creates it. By training, according as it is either good or bad, all excellence is either created or destroyed: just as a man becomes a good or a bad musician, according as he has been subjected to a good or a bad mode of practice.

It is by doing the same thing many times that we acquire at last the habit of doing it—"For what things we have to learn to do, these we learn by doing" (ii. 1): according as the things we are trained to do are good or bad, we acquire good habits or bad habits. By building we become builders, by playing on the harp we become harpers—good or indifferent, according to the way in which we have practised. All legislators wish and attempt to make their citizens good, by means of certain habits: some succeed in the attempt, others fail: and this is the

difference between a good and a bad government. It is by being trained to do acts of justice and courage that we become at last just and courageous—"In one word, habits are generated by (a succession of) like operations: for this reason it is the character of the operations performed which we ought chiefly to attend to: for according to the difference of these will be the habits which ensue. It is therefore not a matter of slight difference whether immediately from our earliest years we are *ethised* in one way or in another—it makes a prodigious difference—or rather, it makes the whole difference" (ii. 1).

Uniform perseverance in action, then, creates a habit: but of what nature is the required action to be? In every department of our nature, where any good result is to be produced, we may be disappointed of our result by two sorts of error: either an excess or on the side of defect. To work or eat too much, or too little, prevents the good effects of training upon the health and strength: so with regard to temperance, courage and the other virtues—the man who is trained to fear everything and the man who is trained to fear nothing, will alike fail in acquiring the genuine habit of courage. The acquisition of the habit makes the performance of the action easy: by a course of abstinent acts, we acquire the habit of temperance: and having acquired this habit, we can with the greater ease perform the act of abstinence (ii. 2).

The symptom which indicates that the habit has been perfectly acquired, is the facility or satisfaction with which the act comes to be performed (ii. 3). The man who abstains from bodily pleasures, and who performs this contentedly (*αὐτῷ τούτῳ χαίρων*), is the *temperate* man: the man who does the same thing but reluctantly and with vexation (*ἀχθόμενος*) is *intemperate:* the like with courage. Ethical excellence, or ethical badness, has reference to our pleasures and pains: whenever we do any thing mean, or shrink from any thing honourable, it is some pleasure or some pain which determines our conduct: for which reason Plato rightly prescribes that the young shall be educated even from the earliest moment so as to give a proper direction to their pleasures and pains (ii. 3). By often pursuing pleasure and pain under circumstances in which we ought not to do so, we contract bad habits, by a law similar to that which under a good education would have imparted to us good habits. Ethical virtue then consists in such a disposition of our pleasures and pains as leads to performance of the best actions. Some persons have defined it to consist in apathy and imperturbability of mind: but this definition is erroneous: the mind ought to be

affected under proper circumstances (ii. 3). (This seems to be the same doctrine which was afterwards preached by the Stoic school.)

There are three ingredients which determine our choice, *the honourable—the expedient—the agreeable:* and as many which occasion our rejection—*the base—the inexpedient—the painful* or *vexatious*. In respect to all these three the good man judges rightly, the wicked man wrongly, and especially in regard to the latter. Pleasure and pain are familiar to us from our earliest childhood, and are ineffaceable from human nature: all men measure and classify actions (κανονίζομεν τὰς πράξεις) by pleasure and pain: some men to a greater degree, others to a less degree.

All ethical excellence, and all the political science, turns upon pleasure and pain (ii. 3).

A man becomes just and temperate by doing just and temperate actions, thus by degrees acquiring the habit. But how (it is asked) can this be true? for if a man performs just and temperate actions, he must already start by being just and temperate.

The objection is not well founded. A man may do just and temperate actions, and yet not be just and temperate. If he does them, knowing what he does, intending what he does, and intending to do the acts for their own sake, then indeed he is just and temperate, but not otherwise. The productions of art carry their own merit along with them: a work of art is excellent or defective, whatever be the state of mind of the person who has executed it. But the acts of a man cannot be said to be justly or temperately done, unless there be a certain state of mind accompanying their performance by the doer: they may indeed be called just and temperate acts, meaning thereby that they are such as a just and temperate man would do, but the man who does them does not necessarily deserve these epithets. It is only by frequent doing of acts of this class that a man can acquire the habit of performing them intentionally and for themselves, in which consists the just and temperate character. To know what such acts are, is little or nothing: you must obey the precepts, just as you follow the prescriptions of a physician. Many men think erroneously that philosophy will teach them to be virtuous, without any course of action adopted by themselves (ii. 4).

Aristotle classifies the phenomena of the soul (the non-rational soul) into three—Passions—Capacities or Faculties—States. The first are the occasional affections—anger, fear, envy, joy, aversion—"in short, everything that is accompanied by pleasure

or pain" (ii. 5). The second are, the capacities of being moved by such affections—the affective faculties, if one may so call them (*ib.* So Eth. Eudem. ii. 2). The third are, those habits according to which we are said to be well or ill disposed towards this or that particular affection: to be disposed to violent anger or violent fear, is a bad habit. Virtues and vices are neither affections, nor faculties, but *habits*, either good or bad. This is the *genus* to which the virtues belong (τῷ γένει—Eth. Nic. ii. 5). Virtue is that habit from the possession of which a man is called good, and by which he performs well his appropriate function (ii. 6). It consists in a certain medium between two extremes, the one of excess, the other of defect—a medium not positive and absolute, but variable and having reference to each particular person and each particular case—neither exceeding nor falling short of what is proper (ii. 6). All ethical virtue aims at the attainment of this middle point in respect to our affections and actions—to exhibit each on the proper occasions, in the proper degree, towards the proper persons, &c. This middle point is but one, but errors on both sides of it are numberless: it must be determined by reason and by the judgment of the prudent man (ii. 6).

Virtue therefore, according to its essence and generic definition (κατὰ μὲν τὴν οὐσίαν, καὶ τὸν λόγον τὸν τί ἦν εἶναι λέγοντα), is a *certain mediocrity*.

But there are some actions and some affections which do not admit of mediocrity, and which imply at once in their names evil and culpability (ii. 6)—such as impudence, envy, theft, &c. Each of these names implies in its meaning a certain excess and defect, and does not admit of mediocrity: just as *temperance* and *courage* imply in their meaning the idea of mediocrity, and exclude both excess and defect.

Aristotle then proceeds to apply his general doctrine—that virtue or excellence consists in a medium between two extremes, both defects—to various different virtues. He again insists upon the extreme difficulty of determining where this requisite medium is, in each individual instance: either excess or defect is the easy and natural course. In finding and adhering to the middle point consists the *well*, the *rare*, the *praiseworthy*, the *honourable* (ii. 9). The extremes, though both wrong, are not always equally wrong: that which is the most wrong ought at any rate to be avoided: and we ought to be specially on our guard against the seductions of pleasure (*ib.*), since our natural inclinations carry us in that direction.

Aristotle so often speaks of the propriety of following *nature*,

and produces *nature* so constantly as an authority and an arbiter, that it seems surprising to find him saying—"We must be on our guard with reference to the things whereto we ourselves are prone. For some of us are by nature disposed towards some things, others towards others."—"But we must drag ourselves away in the opposite direction" (ii. 9).

There is a singular passage in the same chapter with respect to our moral judgments. After having forcibly insisted on the extreme difficulty of hitting the proper medium point of virtue, he says that a man who commits only small errors on one side or on the other side of this point, is not censured, but only he who greatly deviates from it—he then proceeds—"But it is not easy to define in general language at what point a man becomes deserving of censure: nor indeed is it easy to do this with regard to any other matter of perception. Questions of this sort depend upon the circumstances of the particular case, and the judgment upon each *resides in our perception*" (ii. 9).

The first five chapters, of the third Book of the Ethics, are devoted to an examination of various notions involved in our ideas of virtue and vice—*Voluntary* and *Involuntary*—ἑκούσιον καὶ ἀκούσιον—*Ignorance*—ἄγνοια—Choice or resolution, consequent upon previous deliberation—προαίρεσις.

Those actions are *involuntary*, which are done either by compulsion, or through ignorance. An action is done by compulsion when the proximate cause of it (or beginning—ἀρχὴ) is something foreign to the will of the agent—the agent himself neither concurring nor contributing. Actions done from the fear of greater evils are of a mixed character, as where a navigator in a storm throws his goods overboard to preserve the ship. Such actions as this, taken as a class, and apart from particular circumstances, are what no one would do voluntarily: but in the particular circumstances of the supposed case, the action is done voluntarily. Every action is *voluntary*, wherein the beginning of organic motion is, the will of the agent (iii. 1).

Men are praised if under such painful circumstances they make a right choice—if they voluntarily undergo what is painful or dishonourable for the purpose of accomplishing some great and glorious result (*ib.*): they are censured, if they shrink from this course, or if they submit to the evil without some sufficient end. If a man is induced to do what is unbecoming by the threat of evils surpassing human endurance, he is spoken of with forbearance: though there are some crimes of such magnitude as cannot be excused even by the greatest possible apprehension of evil, such as death and torture. In such trying

circumstances, it is difficult to make a right choice, and still more difficult to adhere to the choice when it is made.

What is done *through ignorance*, can never be said to be done *voluntarily:* if the agent shall be afterwards grieved and repentant for what he has done, it is *involuntary*. If he be not repentant, though he cannot be said to have done the deed *voluntarily*, yet neither ought it to be called involuntary.

A distinction however is to be taken in regard to ignorance, considered as a ground for calling the action *involuntary*, and for excusing the agent. A man drunk or in a violent passion, misbehaves, *ignorantly* but not *through ignorance:* that is, ignorance is not the cause of his misbehaviour, but drunkenness or rage. In like manner, every depraved person may be ignorant of his true interest, or the rule which he ought to follow, but this sort of ignorance does not render his behaviour *involuntary*, nor entitle him to any indulgence. It must be ignorance with regard to some particular circumstance connected with the special action which he is committing—ignorance of the person with whom, or the instrument with which, or the subject matter in regard to which he is dealing. Ignorance of this special kind, if it be accompanied with subsequent sorrow and repentance, constitutes an action involuntary, and forms a reasonable ground for indulgence (ii. 1).

A *voluntary action*, then, is that of which the beginning is in the agent—he knowing the particular circumstances under which he is acting. Some persons have treated actions, performed through passion or through desire, as *involuntary;* but this is an error. If this were true, neither children nor animals would be capable of voluntary action. Besides, it is proper, on some occasions, to follow the dictates both of anger and of desire: and we cannot be said to act involuntarily in these cases when we do exactly what we ought to do. Moreover sins from passions and sins from bad reasoning are alike voluntary or alike involuntary: both of them ought to be avoided: and the non-rational affections are just as much a part of human nature as reason is (ii. 1).

Having explained the proper meaning of voluntary and involuntary as applied to actions, Aristotle proceeds to define προαίρεσις (deliberate choice); which is most intimately connected with excellence, and which indeed affords a better test of disposition than actions themselves can do (ii. 2).

All premeditated choice is voluntary, but all voluntary action is not preconcerted. Children and animals are capable of voluntary action, but not of preconcerted action sudden deeds,

too, are voluntary, but not preconcerted. Premeditated choice is different from desire—from passion—from wishing—and from opinion. Desire and passion are common to animals, who are nevertheless incapable of *deliberate preference*. The incontinent man acts from desire, but not from deliberate preference: the continent man acts from deliberate preference, but not from desire. Nor is premeditated choice the same as wishing: for we often wish for what is notoriously impracticable or unattainable, but we do not deliberately prefer any such thing: moreover we *wish* for the end, but we *deliberately choose* the means conducting to the end. We wish to be happy: but it cannot with propriety be said that we deliberately choose to be happy. Deliberate choice has reference to what it is or seems in our own power to achieve.

Again, deliberate choice is not to be regarded as a simple modification of opinion. Opinions extend to everything: deliberate choice belongs exclusively to matters within our grasp. Opinion is either true or false: deliberate choice is either good or evil. We are good or bad, according to the turn which our deliberate choice takes: not according to our opinions. We deliberately choose to seek something or to avoid something, and our choice is praised when it falls upon what is proper: the points upon which we form an opinion are, what such or such a thing is, whom it will benefit, and how: and our opinion is praised when it happens to be true. It often occurs, too, that men who form the truest opinions are not the best in their deliberate preferences. Opinion may precede or accompany every deliberate choice, but still the latter is something distinct in itself. It is in fact a determination of the will, preceded by deliberate counsel, and thus including or presupposing the employment of reason (ii. 2). It is an appetency, determined by previous counsel, of some matter within our means, either really or seemingly, to accomplish—*βουλευτικὴ ὄρεξις τῶν ἐφ' ἡμῖν* (ii. 3).

It seems from the language of Aristotle that the various explanations of Προαίρεσις which he has canvassed and shown to be inadmissible, had all been advanced by various contemporary philosophers.

Προαίρεσις, or *deliberate preference*, includes the idea of *deliberation*. A reasonable man does not deliberate upon all matters—he does not deliberate respecting mathematical or physical truths, or respecting natural events altogether out of his reach, or respecting matters of pure accident, or even respecting matters of human design carried on by distant foreign

nations. He only deliberates respecting matters which are more or less within his own agency and control: respecting matters which are not certain, but of doubtful issue. He does not deliberate about the end, but about the means towards the end: the end itself is commonly assumed, just as the physician assumes the necessity of establishing good health and the orator that of persuading his hearers. If there be more than one way of accomplishing the end, he deliberates by which out of these several means he can achieve it best and most easily: proceeding from the end itself first to the proximate cause of that end, then to the cause immediately preceding that cause, and so backwards until he arrives at the primary cause, which is either an action of his own, within his own means, or something requiring implements and assistance beyond his power to procure. This is a process of analysis, similar to that which is pursued by geometricians in seeking the way of solving a problem: they assume the figure with the required conditions to be constructed: they then take it to pieces, following back the consequences of each separate condition which it has been assumed to possess. If by this way of proceeding they arrive at some known truth, their problem is solved; if they arrive at some known untruth, the problem is insoluble. That step which is last arrived at in the analysis, is the first in the order of production (iii. 3). When a man in carrying back mentally this deliberative analysis arrives at something manifestly impracticable, he desists from farther deliberation: if he arrives at something within his power to perform, he begins action accordingly. The subject of *deliberation*, and the subject of *deliberate preference*, are the same, but the latter represents the process as accomplished and the result of deliberation decided.

We take counsel and deliberation (as has been said), not about the end, but about the means or the best means towards the end assumed. We *wish for the end* (ἡ βούλησις τοῦ τέλους ἐστι—iii. 4). Our wish is for good, real or apparent: whether for the one or the other, is a disputed question. Speaking generally, and without reference to peculiar idiosyncrasies, the real good or *the good* is the object of human wishes: speaking with reference to any particular individual, it is his own supposed or apparent good. On this matter, the virtuous man is the proper judge and standard of reference: that which is really good appears good to him. Each particular disposition has its own peculiar sentiment both of what is honourable and of what is agreeable (iii. 4): the principal excellence of the virtuous man is, that he in every variety of circumstances perceives what is truly and genuinely

good; whereas to most men, pleasure proves a deception, and appears to be good, not being so in reality.

Both virtue and vice consists in *deliberate preference*, of one or of another course of action. Both therefore are voluntary and in our own power: both equally so. It is not possible to refer virtuous conduct or vicious conduct to any other beginning except to ourselves: the man is the cause of his own actions, as he is the father of his own children. It is upon this assumption that all legal reward and punishment is founded: it is intended for purposes of encouragement and prevention, but it would be absurd to think either of encouraging or preventing what is involuntary, such as the appetite of hunger and thirst. A man is punished for ignorance, when he is himself the cause of his own ignorance, or when by reasonable pains he might have acquired the requisite knowledge. Every man above the limit of absolute fatuity (*κομιδῇ ἀναισθήτου*) must know that any constant repetition of acts tends to form a habit: if then by repetition of acts he allows himself to form a bad habit, it is his own fault. When once the bad habit is formed, it is true that he cannot at once get rid of it: but the formation of such a habit originally was not the less imputable to himself (iii. 5). Defects of body also which we bring upon ourselves by our own negligence or intemperance, bring upon us censure: if they are constitutional and unavoidable, we are pitied for them. Some persons seem to have contended at that time, that no man could justly be made responsible for his bad conduct: because (they said) the end which he proposed to himself was good or bad according to his natural disposition, not according to any selection of his own. Aristotle seems to be somewhat perplexed by this argument: nevertheless he maintains, that whatever influence we may allow to original and uncontrollable nature, still the formation of our habits is more or less under our own concurrent control; and therefore the end which we propose to ourselves being dependent upon those habits, is also in part at least dependent upon ourselves (iii. 5)—our virtues and our vices are both voluntary.

The first five chapters of the third Book (in which Aristotle examines the nature of *τὸ ἑκούσιον, τὸ ἀκούσιον, προαίρεσις, βούλησις*, &c.) ought perhaps to constitute a Book by themselves. They are among the most valuable parts of the Ethics. He has now established certain points with regard to our virtues generally.

1. They are mediocrities (*μεσότητες*).

2. They are habits, generated by particular actions often repeated.

3. When generated, they have a specific influence of their own in facilitating the performance of actions of the same class.

4. They are in our own power originally, and voluntary.

5. They are under the direction of right reason.

It is to be observed that our actions are voluntary from the beginning to the end—the last of a number of repeated actions is no less voluntary than the first. But our habits are voluntary only at the beginning—they cease to be voluntary after a certain time—but the permanent effect left by each separate repetition of the action is inappreciable (iii. 5).

Aristotle then proceeds to an analysis of the separate virtues—Courage, Temperance, Liberality, Magnificence, Magnanimity, Gentleness, Frankness, Simplicity, Elegant playfulness, Justice, Equity, &c. He endeavours to show that each of these is a certain mediocrity—excess lying on one side of it, defect on the other.

There are various passages of Aristotle which appear almost identical with the moral doctrine subsequently maintained by the Stoic school: for example—iii. 6—"In like manner he ought not to fear penury, nor sickness, nor in any way such things as arise not from moral baseness nor are dependent on himself."

The courageous man is afraid of things such as it befits a man to fear, but of no others: and even these he will make head against on proper occasions, when reason commands and for the sake of *honour*, which is the end of virtue (iii. 7). To fear nothing, or too little, is rashness or insanity: to fear too much, is timidity: the courageous man is the mean between the two, who fears what he ought, when he ought, as he ought, and with the right views and purposes (*ib.*). The μοιχὸς (adulterer) exposes himself often to great dangers for the purpose of gratifying his passion: but Aristotle does not hold this to be courage. Neither does he thus denominate men who affront danger from passion, or from the thirst of revenge, or from a sanguine temperament—there must be deliberate preference and a proper motive, to constitute courage—the motive of honour (iii. 8).

The end of courage (says Aristotle) is in itself pleasant, but it is put out of sight by the circumstances around it: just as the prize for which the pugilist contends is in itself pleasurable, but being of small moment and encompassed with painful accessories, it appears to carry with it no pleasure whatever. Fatigue, and wounds and death are painful to the courageous man—death is indeed more painful to him, inasmuch as his life is of more value: but still he voluntarily and knowingly affronts these pains for the sake of honour.

This is painful: "but pleasure is not to be anticipated in the exercise of all the different virtues, except in so far as the attainment of the end is concerned" (iii. 9).

(This is perfectly true: but it contradicts decidedly the remark which Aristotle had made before in his first Book (i. 8) respecting the inherent pleasure of virtuous agency.)

Courage and Temperance are the virtues of the instincts (*τῶν ἀλόγων μερῶν*—iii. 10). Temperance is the observance of a rational medium with respect to the pleasures of eating, drinking, and sex. Aristotle seems to be inconsistent when he makes it to belong to those pleasures in which animals generally partake (iii. 10); for other animals do not relish intoxicating liquors: unless indeed these are considered as ranking under *drink* generally. The temperate man desires these pleasures as he ought, when he ought, within the limits of what is honourable, and having a proper reference to the amount of his own pecuniary means: just as right reason prescribes (iii. 11). To pursue them more, is excess: to pursue them less, is defect. There is however, in estimating excess and defect, a certain tacit reference to the average dispositions of the many.

"Wherefore the desires of the temperate man ought to harmonize with reason; for the aim of both is the honourable. And the temperate man desires what he ought, and as he ought, and when: and this too is the order of reason" (iii. 12).

All virtuous acts are to be *on account of the honourable*—thus Aristotle says that the donations of the *ἄσωτος* (prodigal) are not to be called liberal—"Neither are their gifts liberal, for they are not honourable, nor on account of this, nor as they ought to be" (iv. 1). Again about the *μεγαλοπρεπὴς* or *magnificent* man—"Now the magnificent man will expend such things on account of the honourable; for this is a condition shared in by all the virtues: and still he will do so pleasantly and lavishly" (iv. 2). On the contrary, the *βάναυσος* or *vulgar* man, who differs from the magnificent man in the way of *ὑπερβολὴ* or *excess*, is said to spend—"Not for the sake of the honourable, but for the purpose of making a display of his wealth" (iv. 2).

With respect to those epithets which imply praise or blame, there is always a tacit comparison with some assumed standard. Thus with regard to the *φιλότιμος* (lover of honour), Aristotle observes—"It is evident that, as the term 'lover of such and such things' is used in various senses, we do not always apply 'lover of honour' to express the same thing; but when we praise, we praise that ambition which is more than most men's, and blame that which is greater than it ought to be" (iv. 4).

In the fifth Book, Aristotle proceeds to explain wherein consist *Justice* and *Injustice*.

These words are used in two senses—a larger sense and a narrower sense.

In the larger sense, *just behaviour* is equivalent to the observance of law, generally: unjust behaviour is equivalent to the violation of law generally. But the law either actually does command, or may be understood to command, that we should perform towards others the acts belonging to each separate head of virtue: it either actually prohibits, or may be understood to prohibit, us from performing towards others any of the acts belonging to each separate head of vice. In this larger sense, therefore, *justice* is synonymous generally with perfect virtue—*injustice*, with perfect wickedness: there is only this difference, that *just* or *unjust* are expressions applied to behaviour in so far as it affects other persons besides the agent: whereas *virtuous* or *wicked* are expressions applied simply to the agent without connoting any such ulterior reference to other persons. *Just* or *unjust*, is necessarily towards somebody else: and this reference is implied distinctly in the term. Virtuous and vicious do not in the force of the term connote any such relations, but are employed with reference to the agent simply—"This justice then is perfect virtue; yet not absolutely, but with reference to one's neighbour.—In one sense we call those things *just* that are productive and preservative of happiness and its parts to the political communion" (v. 1).

Justice in this sense, is the very fulness of virtue, because it denotes the actual exercise of virtuous behaviour towards others: "there are many who behave virtuously in regard to their own personal affairs, but who are incapable of doing so in what regards others" (*ib.*). For this reason, justice has been called by some *the good of another and not our own*—justice alone of all the virtues, because it necessarily has reference to another: the just man does what is for the interest of some one else, either the magistrate, or the community (v. 1).

Justice in the narrower sense, is that mode of behaviour whereby a man, in his dealings with others, aims at taking to himself his fair share and no more of the common objects of desire: and willingly consents to endure his fair share of the common hardships. *Injustice* is the opposite—that by which a man tries to appropriate more than his fair share of the objects of desire, while he tries to escape his fair share of the objects of aversion. To aim at this unfair distribution of the benefits of the society, either in one's own favour or in favour of any one else, is *injustice in the narrow sense* (v. 2).

Justice in this narrower sense is divided into two branches—1. Distributive Justice. 2. Corrective Justice.

Distributive Justice has reference to those occasions on which positive benefits are to be distributed among the members of the community, wealth and honours, &c. (v. 2). In this case, the share of each citizen is to be a share not absolutely of equality, but one proportional to his personal worth (ἀξίαν): and it is in the estimation of this personal worth that quarrels and dissension arise.

Corrective Justice has reference to the individual dealings, or individual behaviour, between man and man: either to the dealings implying mutual consent and contract, as purchase, sale, loan, hire, suretyship, deposit, &c.: or such as imply no such mutual consent,—such as are on the contrary proceedings either by fraud or by force—as theft, adultery, perjury, poisoning, assassination, robbery, beating, mutilation, murder, defamation, &c.

In regard to transactions of this nature, the citizens are considered as being all upon a par—no account is taken of the difference between them in point of individual worth. Each man is considered as entitled to an equal share of good and evil: and if in any dealings between man and man, one man shall attempt to increase his own share of good or to diminish his own share of evil at the expense of another man, corrective justice will interpose and re-establish the equality thus improperly disturbed. He who has been made to lose or to suffer unduly, must be compensated and replaced in his former position: he who has gained unduly, must be mulcted or made to suffer, so as to be thrown back to the point from which he started. The judge, who represents this *corrective justice*, is a kind of mediator, and the point which he seeks to attain in directing redress, is *the middle point between gain and loss*—so that neither shall the aggressive party be a gainer, nor the suffering party a loser—"So that justice is a mean between a sort of gain and loss in voluntary things,—it is the having the same after as before" (v. 4). Aristotle admits that the words *gain* and *loss* are not strictly applicable to many of the transactions which come within the scope of interference from *corrective justice*—that they properly belong to voluntary contracts, and are strained in order to apply them to acts of aggression, &c. (*ib.*).

The Pythagoreans held the doctrine that justice universally speaking consisted in simple retaliation—in rendering to another the precise dealing which that other had first given. This defi-

nition will not suit either for distributive justice or corrective justice: the treatment so prescribed would be sometimes more, sometimes less, than justice: not to mention that acts deserve to be treated differently according as they are intentional or unintentional. But the doctrine is to a certain extent true in regard to the dealings between man and man (ἐν ταῖς ἀλλακτικαῖς κοινωνίαις)—if it be applied in the way of general analogy and not with any regard to exact similarity—it is of importance that the man who has been well treated, and the man who has been illtreated, should each show his sense of the proceeding by returning the like usage: "for by proportionate requital the State is held together" (v. 5). The whole business of exchange and barter, of division of labour and occupation,—the co-existence of those distinct and heterogeneous ingredients which are requisite to constitute the political communion—the supply of the most essential wants of the citizens—is all founded upon the continuance and the expectation of this assured requital for acts done. Money is introduced as an indispensable instrument for facilitating this constant traffic: it affords a common measure for estimating the value of every service—"And thus if there were no possibility of retaliation, there would be no communion" (v. 5).

Justice is thus a mediocrity—or consists in a just medium—between two extremes, but not in the same way as the other virtues. The just man is one who awards both to himself and to every one else the proper and rightful share both of benefit and burthen. Injustice, on the contrary, consists in the excess or defect which lie on one side or the other of this medium point (v. 5).

Distributive justice is said by Aristotle to deal with individuals according to geometrical ratio; *corrective justice*, according to arithmetical proportion. *Justice*, strictly and properly so called, is *political justice:* that reciprocity of right and obligation which prevails between free and equal citizens in a community, or between citizens who, if not positively equal, yet stand in an assured and definite ratio one to the other (v. 6). This relation is defined and maintained by law, and by judges and magistrates to administer the law. Political justice implies a state of law—a community of persons qualified by nature to obey and sustain the law—and a definite arrangement between the citizens in respect to the alternation of command and obedience—"For this is, as we have said (ἦν), according to law, and among those who can naturally have law; those, namely, as we have said (ἦσαν), who have an equality of ruling and being ruled." As the law arises

out of the necessity of preventing injustice, or of hindering any individual from appropriating more than his fair share of good things, so it is felt that any person invested with sovereign authority may and will commit this injustice. Reason therefore is understood to hold the sovereign authority, and the archon acts only as the guardian of the reciprocal rights and obligations—of the constitutional equality—between the various citizens: undertaking a troublesome duty and paid for his trouble by honour and respect (v. 6).

The relation which subsists between master and slave, or father and son, is not properly speaking that of justice, though it is somewhat analogous. Both the slave, and the non-adult son, are as it were parts of the master and father: there can therefore be no injustice on his part towards them, since no one deliberately intends to hurt a part of himself. Between husband and wife there subsists a sort of justice—*household justice* (*τὸ οἰκονομικὸν δίκαιον*)—but this too is different from political justice (v. 6).

Political justice is in part *natural*—in part *conventional*. That which is *natural* is everywhere the same: that which is *conventional* is different in different countries, and takes its origin altogether from positive and special institution. Some persons think that *all* political justice is thus conventional, and none natural: because they see that rights and obligations (*τὰ δίκαια*) are everywhere changeable, and nowhere exhibit that permanence and invariability which mark the properties of natural objects. "This is true to a certain extent, but not wholly true: probably among the Gods it is not true at all: but with us that which is natural is in part variable, though not in every case: yet there is a real distinction between what is natural and what is not natural. Both natural justice and conventional justice, are thus alike contingent and variable: but there is a clear mode of distinguishing between the two, applicable not only to the case of justice but to other cases in which the like distinction is to be taken. For by nature the right hand is the stronger: but nevertheless it may happen that there are ambidextrous men.—And in like manner those rules of justice which are not natural, but of human establishment, are not the same everywhere: nor indeed does the same mode of government prevail everywhere, though there is but one mode of government which is everywhere agreeable to nature —the best of all" (v. 7).

(The commentary of Andronicus upon this passage is clearer and more instructive than the passage of Aristotle itself: and

it is remarkable as a distinct announcement of the principle of utility. "Since both natural justice, and conventional justice, are changeable, in the way just stated, how are we to distinguish the one of these fluctuating institutions from the other? The distinction is plain. Each special precept of justice is to be examined on its own ground to ascertain whether it be for the advantage of all that it should be maintained unaltered, or whether the subversion of it would occasion mischief. If this be found to be the fact, the precept in question belongs to natural justice: if it be otherwise, to conventional justice" (Andronic. Rh. v. c. 10).

The just, and the unjust, being thus defined, a man who does, willingly and knowingly, either the one or the other, acts justly or unjustly: if he does it unwillingly or unknowingly, he neither acts justly nor unjustly, except by accident—that is, he does what is not essentially and in its own nature unjust, but is only so by accident (v. 8). Injustice will thus have been done, but no unjust act will have been committed, if the act be done involuntarily. The man who restores a deposit unwillingly and from fear of danger to himself, does not act justly, though he does what by accident is just: the man who, anxious to restore the deposit, is prevented by positive superior force from doing so, does not act unjustly, although he does what by accident is unjust. When a man does mischief, it is either done contrary to all reasonable expectation, in such manner that neither he nor any one else could have anticipated from his act the mischief which has actually ensued from it (παραλόγως), and in this case it is a pure misfortune (ἀτύχημα): or he does it without intention or foreknowledge, yet under circumstances in which mischief might have been foreseen, and ought to have been foreseen; in this case it is a fault (ἁμάρτημα): or he does it intentionally and with foreknowledge, yet without any previous deliberation, through anger, or some violent momentary impulse; in this case it is an unjust act (ἀδίκημα), but the agent is not necessarily an *unjust or wicked* man for having done it: or he does it with intention and deliberate choice, and in this case he is an unjust and wicked man.

The man who does a just thing, or an unjust thing, is not necessarily a just or an unjust man. Whether he be so or not, depends upon the state of his mind and intention at the time (v. 8).

Equity, τὸ ἐπιεικὲς, is not at variance with justice, but is an improvement upon justice. It is a correction and supplement to the inevitable imperfections in the definitions of legal

justice. The law wishes to comprehend all cases, but fails in doing so: the words of its enactment do not fully and exactly express its real intentions, but either something more or something less. When the lawgiver speaks in general terms, a particular case may happen which falls within the rule as he lays it down, but which he would not have wished to comprehend if he had known how to avoid it. It is then becoming conduct in the individual to whose advantage the law in this special case turns, that he should refrain from profiting by his position, and that he should act as the legislator himself would wish, if consulted on the special case. The general rules laid down by the legislator are of necessity more or less defective: in fact, the only reason why everything is not determined by law, is, that there are some matters respecting which it is impossible to frame a law (v. 10). Such is the conduct of the equitable man—"the man who refrains from pushing his legal rights to the extreme, to the injury of others, but who foregoes the advantage of his position, although the law is in his favour" (*ὁ μὴ ἀκριβοδίκαιος ἐπὶ χεῖρον, ἀλλ' ἐλαττωτικὸς, καίπερ ἔχων τὸν νόμον βοηθόν*).

A man may hurt himself, but he cannot act unjustly towards himself. No injustice can be done to a man except against his own consent. Suicide is by implication forbidden by the law: to commit suicide is wrong, because a man in so doing acts unjustly towards the city, not towards himself, which is impossible (v. 12).

To act unjustly—and to be the object of unjust dealing by others—are both bad: but which is the worst? It is the least of the two evils to be the object of unjust dealing by others. Both are bad, because in the one case a man gets more than his share, in the other less than his share: in both cases the just medium is departed from. To act unjustly is blameable, and implies wickedness: to be the object of unjust dealing by others is not blameable, and implies no wickedness: the latter is therefore in itself the least evil, although by accident it may perhaps turn out to be the greater evil of the two. In the same manner a pleurisy is in itself a greater evil than a trip and a stumble: but by accident it may turn out that the latter is the greater evil of the two, if it should occur at the moment when a man is running away from the enemy, so as to cause his being taken prisoner and slain.

The question here raised by Aristotle—which is the greater evil—to act unjustly or to be the object of unjust dealing—had been before raised by Plato in the Gorgias. Aristotle follows

out his theory about virtue, whereby he makes it consist in the observance of a medium point. The man that acts unjustly sins on one side of this point, the object of unjust dealing misses it on the other side: the one is comparable to a man who eats or works too much for his health, the other to a man who eats or works too little. The question is one which could hardly arise, according to the view taken by modern ethical writers of the principles of moral science. The two things compared are not in point of fact commensurable. Looking at the question from the point of view of the moralist, the person injured has incurred no moral guilt, but has suffered more or less of misfortune: the unjust agent on the contrary has suffered no misfortune—perhaps he has reaped benefit—but at any rate he has incurred moral guilt. Society on the whole is a decided loser by the act: but the wrong done implies the suffering inflicted: the act is considered and called *wrong* because it does inflict suffering, and for no other reason. It seems an inadmissible question therefore, to ask which of the two is the greater evil—the suffering undergone by A—or the wrong by which B occasioned that suffering: at least so far as society is concerned.

But the ancient moralists, in instituting this comparison, seem to have looked, not at society, but at the two individuals—the wrong doer and the wrong sufferer—and to have looked at them too from a point of view of their own. If we take the feelings of these two parties themselves as the standard by which to judge, the sentence must be obviously contrary to the opinion delivered by Aristotle: the sufferer, according to his own feeling, is worse off than he was before: the doer is better off. And it is for this reason that the act forms a proper ground for judicial punishment or redress. But the moralist estimates the condition of the two men by a standard of his own, not by the feelings which they themselves entertain. He decides for himself that a virtuous frame of mind is the primary and essential ingredient of individual happiness—a wicked frame of mind the grand source of misery: and by this test he tries the comparative happiness of every man. The man who manifests evidence of a guilty frame of mind is decidedly worse off than he who has only suffered an unmerited misfortune.

CHAPTER XIV.

POLITICA.

THE scheme of government proposed by Aristotle, in the two last books of his Politics, as representing his own ideas of something like perfection, is evidently founded upon the Republic of Plato: from whom he differs in the important circumstance of not admitting either community of property or community of wives and children.

Each of these philosophers recognises one separate class of inhabitants, relieved from all private toil and all money-getting employments, and constituting exclusively the citizens of the commonwealth. This small class is in effect *the city—the commonwealth:* the remaining inhabitants are not a part of the commonwealth, they are only appendages to it—indispensable indeed, but still appendages, in the same manner as slaves or cattle (vii. 8). In the Republic of Plato this narrow aristocracy are not allowed to possess private property or separate families, but form one inseparable brotherhood. In the scheme of Aristotle, this aristocracy form a distinct caste of private families each with its separate property. The whole territory of the State belongs to them, and is tilled by dependent cultivators, by whom the produce is made over and apportioned under certain restrictions. A certain section of the territory is understood to be the common property of the body of citizens (*i.e.* of the aristocracy), and the produce of it is handed over by the cultivators into a common stock, partly to supply the public tables at which all the citizens with their wives and families are subsisted, partly to defray the cost of religious solemnities. The remaining portion of the territory is possessed in separate properties by individual citizens, who consume the produce as they please (vii. 9): each citizen having two distinct lots of land assigned to him, one near the outskirts of the territory, the other near the centre. This latter regulation also had been adopted by Plato in the treatise de Legibus, and it is surprising to observe that Aristotle himself had censured it, in his criticisms on that treatise, as incompatible with a judicious and

careful economy (ii. 3. 8). The syssitia or public tables are also adopted by Plato, in conformity with the institutions actually existing in his time in Crete and elsewhere.

The dependent cultivators, in Aristotle's scheme, ought to be slaves, not united together by any bond of common language or common country (vii. 9, 9): if this cannot be, they ought to be a race of subdued foreigners, degraded into periœci, deprived of all use of arms, and confined to the task of labouring in the field. Those slaves who till the common land are to be considered as the property of the collective body of citizens: the slaves on land belonging to individual citizens, are the property of those citizens.

When we consider the scanty proportion of inhabitants whom Aristotle and Plato include in the benefits of their community, it will at once appear how amazingly their task as political theorists is simplified. Their commonweath is really an aristocracy on a very narrow scale. The great mass of the inhabitants are thrust out altogether from all security and good government, and are placed without reserve at the disposal of the small body of armed citizens.

There is but one precaution on which Aristotle and Plato rely for ensuring good treatment from the citizens towards their inferiors: and that is, the finished and elaborate education which the citizens are to receive. Men so educated, according to these philosophers, will behave as perfectly in the relation of superior to inferior, as in that of equal to equal—of citizen to citizen.

This supposition would doubtless prove true, to a certain extent, though far short of that extent which would be requisite to assure the complete comfort of the inferior. But even if it were true to the fullest extent, it would be far from satisfying the demands of a benevolent theorist. For though the inferior should meet with kindness and protection from his superior, still his mind must be kept in a degradation suitable to his position. He must be deprived of all moral and intellectual culture: he must be prevented from imbibing any ideas of his own dignity: he must be content to receive whatever is awarded, to endure whatever treatment is vouchsafed, without for an instant imagining that he has a right to benefits or that suffering is wrongfully inflicted upon him. Both Plato and Aristotle acknowledge the inevitable depravation and moral abasement of all the inhabitants excepting their favoured class. Neither of them seems solicitous either to disguise or to mitigate it.

But if they are thus indifferent about the moral condition of the mass, they are in the highest degree exact and careful

respecting that of their select citizens. This is their grand and primary object, towards which the whole force of their intellect, and the full fertility of their ingenious imagination, is directed. Their plans of education are most elaborate and comprehensive: aiming at every branch of moral and intellectual improvement, and seeking to raise the whole man to a state of perfection, both physical and mental. You would imagine that they were framing a scheme of public education, not a political constitution: so wholly are their thoughts engrossed with the training and culture of their citizens. It is in this respect that their ideas are truly instructive.

Viewed with reference to the general body of inhabitants in a State, nothing can be more defective than the plans of both these great philosophers. Assuming that their objects were completely attained, the mass of the people would receive nothing more than that degree of physical comfort and mild usage which can be made to consist with subjection and with the extortion of compulsory labour.

Viewed with reference to the special class recognized as citizens, the plans of both are to a high degree admirable. A better provision is made for the virtue as well as for the happiness of this particular class than has ever been devised by any other political projector. The intimate manner in which Aristotle connects virtue with happiness, is above all remarkable. He in fact defines happiness to consist in *the active exertion and perfected habit of virtue* (ἀρετῆς ἐνέργεια καὶ χρῆσίς τις τέλειος—vi. 9. 3.): and it is upon this disposition that he founds the necessity of excluding the mass of inhabitants from the citizenship. For the purpose to be accomplished by the political union, is, the assuring of happiness to every individual citizen, which is to be effected by implanting habits of virtue in every citizen. Whoever therefore is incapable of acquiring habits of virtue, is disqualified from becoming a citizen. But every man whose life is spent in laborious avocations, whether of husbandry, of trade, or of manufacture, becomes thereby incapable of acquiring habits of virtue, and cannot therefore be admitted to the citizenship. No man can be capable of the requisite mental culture and tuition, who is not exempted from the necessity of toil, enabled to devote his whole time to the acquisition of virtuous habits, and subjected from his infancy to a severe and systematic training. The exclusion of the bulk of the people from civil rights is thus founded, in the mind of Aristotle, on the lofty idea which he forms of individual human perfection, which he conceives to be absolutely unattainable unless it be

made the sole object of a man's life. But then he takes especial care that the education of his citizens shall be really such as to compel them to acquire that virtue on which alone their pre-eminence is built. If he exempts them from manual or money-getting labours, he imposes upon them an endless series of painful restraints and vexatious duties for the purpose of forming and maintaining their perfection of character. He allows no luxury or self-indulgence, no misappropriation of time, no ostentatious display of wealth or station. The life of his select citizens would be such as to provoke little envy or jealousy, among men of the ordinary stamp. Its hard work and its strict discipline would appear repulsive rather than inviting: and the pre-eminence of strong and able men, submitting to such continued schooling, would appear well deserved and hardly earned.

Oligarchical reasoners in modern times employ the bad part of Aristotle's principle without the good. They represent the rich and great as alone capable of reaching a degree of virtue consistent with the full enjoyment of political privileges: but then they take no precautions, as Aristotle does, that the men so preferred shall really answer to this exalted character. They leave the rich and great to their own self-indulgence and indolent propensities, without training them by any systematic process to habits of superior virtue. So that the select citizens on this plan are at the least no better, if indeed they are not worse, than the remaining community, while their unbounded indulgencies excite either undue envy or undue admiration, among the excluded multitude. The select citizens of Aristotle are both better and wiser than the rest of their community: while they are at the same time so hemmed in and circumscribed by severe regulations, that nothing except the perfection of their character can appear worthy either of envy or admiration. Though therefore these oligarchical reasoners concur with Aristotle in sacrificing the bulk of the community to the pre-eminence of a narrow class, they fail of accomplishing the end for which alone he pretends to justify such a sacrifice—the formation of a few citizens of complete and unrivalled virtue.

The arrangements made by Aristotle for the good government of his aristocratical citizens among themselves, are founded upon principles of the most perfect equality. He would have them only limited in number, for in his opinion, personal and familiar acquaintance among them all is essentially requisite to good government (vii. 4. 7). The principal offices of the State are all to be held by the aged citizens: the military duties are to be fulfilled by the younger citizens. The city altogether, with the

territory appertaining to it, must be large enough to be αὐτάρκης: but it must not be so extensive as to destroy personal intimacy among the citizens. A very large body are, in Aristotle's view, incapable of discipline or regularity.

To produce a virtuous citizen, *nature*, *habit*, and *reason* must coincide. They ought to be endued with virtues qualifying them both for occupation and for leisure: with courage, self-denial (καρτερία), and fortitude, to maintain their independence: with justice and temperance, to restrain them from abusing the means of enjoyment provided for them: and with philosophy or the love of contemplative wisdom and science, in order to banish ennui, and render the hours of leisure agreeable to them (vii. 13. 17). They are to be taught that their hours of leisure are of greater worth and dignity than their hours of occupation. Occupation is to be submitted to for the sake of the quiet enjoyment of leisure, just as war is made for the sake of procuring peace, and useful and necessary employments undertaken for the sake of those which are honourable (vii. 13. 8). Aristotle greatly censures (see vii. 2. 5) (as indeed Plato had done before him) the institutions of Lacedæmon, as being directed exclusively to create excellent warriors, and to enable the nation to rule over foreigners. This (he says) is not only not the right end, but is an end absolutely pernicious and culpable. To maintain a forcible sovereignty over free and equal foreigners, is unjust and immoral: and if the minds of the citizens be corrupted with this collective ambition and love of power, it is probable that some individual citizen, taught by the education of the State to consider power as the first of all earthly ends, will find an opportunity to aggrandize himself by force or fraud, and to establish a tyranny over his countrymen themselves (viii. 13. 13). The Lacedæmonians conducted themselves well and flourished under their institutions, so long as they were carrying on war for the enlargement of their dominion: but they were incapable of tasting or profiting by peace: they were not educated by their legislator so as to be able to turn leisure to account (αἴτιος δ' ὁ νομοθέτης, οὐ παιδεύσας δύνασθαι σχολάζειν—vii. 13. 15).

The education of the citizen is to commence with the body: next the irrational portion of the soul is to be brought under discipline—that is, the will and the appetites, the concupiscent and irascible passions: thirdly, the rational portion of the soul is to be cultivated and developed. The habitual desires are to be so moulded and tutored as to prepare them for the sovereignty of reason, when the time shall arrive for bringing reason into action (vii. 13. 23). They are to learn nothing until five years

old (vii. 15. 4), their diversions are to be carefully prepared and presented to them, consisting generally of a mimicry of subsequent serious occupations (vii. 15. 15): and all the fables and tales which they hear recited are to be such as to pave the way for moral discipline (*ib.*); all under the superintendence of the Pædonom. No obscene or licentious talk is to be tolerated in the city (vii. 15. 7), nor any indecent painting or statue, except in the temples of some particular Deities. No youth is permitted to witness the recitation either of iambics or of comedy (vii. 15. 9), until he attains the age which qualifies him to sit at the public tables. Immense stress is laid by the philosopher on the turn of ideas to which the tender minds of youth become accustomed, and on the earliest combinations of sounds or of visible objects which meet their senses (vii. 15. 10). Πρὸς πάσας δυνάμεις καὶ τέχνας ἐστὶν ἃ δεῖ προπαιδεύεσθαι καὶ προεθίζεσθαι πρὸς τὰς ἑκάστων ἐργασίας, ὥστε δῆλον ὅτι καὶ πρὸς τὰς τῆς ἀρετῆς πράξεις (viii. 1. 2).

All the citizens in Aristotle's republic are to be educated according to one common system: each being regarded as belonging to the commonwealth more than to his own parents. This was the practice at Lacedæmon, and Aristotle greatly eulogizes it (viii. 1. 3).

Aristotle does not approve of extreme and violent bodily training, such as would bring the body into the condition of an athlete: nor does he even sanction the gymnastic labours imposed by the Lacedæmonian system, which had the effect of rendering the Spartans "brutal of soul," for the purpose of exalting their courage (οἱ Λάκωνες—θηριώδεις ἀπεργάζονται τοῖς πόνοις, ὡς τοῦτο μάλιστα πρὸς ἀνδρείαν σύμφερον). He remarks, first, that courage is not the single or exclusive end to be aimed at in a civil education: next, that a savage and brutal soul is less compatible with exalted courage than a gentle soul, trained so as to be exquisitely sensible to the feelings of shame and honour (viii. 3. 3-5). The most sanguinary and unfeeling among the barbarous tribes, he remarks, were very far from being the most courageous. A man trained on the Lacedæmonian system, in bodily exercises alone, destitute even of the most indispensable mental culture (see below), was a real βάναυσος—useful only for one branch of political duties, and even for that less useful than if he had been trained in a different manner.

Up to the age of 14, Aristotle prescribes (ἥβη means 14 years of age—see vii. 15. 11) that boys shall be trained in gentle and regular exercises, without any severe or forced labour. From 14 to 17 they are to be instructed in various branches of

knowledge: after 17, they are to be put to harder bodily labour and to be nourished with a special and peculiar diet (ἀναγκοφαγίαις). For how long this is to continue, is not stated. But Aristotle insists on the necessity of not giving them at the same time intellectual instruction and bodily training, for the one of these, he says, counteracts and frustrates the other (viii. 4. 2-3).

The Lacedæmonians made music no part of their education: Isocrat. Panathen. Or. xii. p. 375, B.; they did not even learn 'letters' (γράμματα), but they are said to have been good judges of music (viii. 4. 6). Aristotle himself however seems to think it next to impossible that men who have not learned music can be good judges (viii. 6. 1).

Aristotle admits that music may be usefully learnt as an innocent pleasure and relaxation: but he chiefly considers it as desirable on account of its moral effects, on the dispositions and affections. A right turn of the pleasurable and painful emotions is, in his opinion, essential to virtue: particular strains and particular rhythms are naturally associated with particular dispositions of mind: by early teaching, those strains and those rhythms which are associated with temperate and laudable dispositions may be made more agreeable to a youth than any others. He will like best those which he hears earliest, and which he finds universally commended and relished by those about him. A relish for the ὁμοιώματα of virtuous dispositions will tend to increase in him the love of virtue itself (viii. 6. 5. 8).

Aristotle enjoins that the youth be taught to execute music instrumentally and vocally, because it is only in this way that they can acquire a good taste or judgment in music: besides which, it is necessary to furnish boys with some occupation, to absorb their restless energies, and there is none more suitable than music. Some persons alleged that the teaching music as a manual art was *banausic* and degrading, lowering the citizen down to the station of a hired professional singer. Aristotle meets this objection by providing that youths shall be instructed in the musical art, but only with the view of correcting and cultivating their taste: they are to be forbidden from making any use of their musical acquisitions, in riper years, in actual playing or singing (viii. 6. 3). Aristotle observes, that music more difficult of execution had been recently introduced into the agones, and had found its way from the agones into the ordinary education. He decidedly disapproves and excludes it (viii. 6. 4). He forbids both the flute and the harp, and every other instrument requiring much art to play upon it: especially the flute,

which he considers as not ethical, but orgiastical—calculated to excite violent and momentary emotions. The flute obtained a footing in Greece after the Persian invasion; in Athens at that time it became especially fashionable; but was discontinued afterwards (Plutarch alleges, through the influence of Alcibiades).

The suggestions of Aristotle for the education of his citizens are far less copious and circumstantial than those of Plato in his Republic. He delivers no plan of study, no arrangement of sciences to be successively communicated, no reasons for preferring or rejecting. We do not know what it was precisely which Aristotle comprehended in the term "philosophy," intended by him to be taught to his citizens as an aid for the proper employment of their leisure. It must probably have included the moral, political, and metaphysical sciences, as they were then known—those sciences to which his own voluminous works relate.

By means of the public table, supplied from the produce of the public lands, Aristotle provides for the full subsistence of every citizen. Yet he is well aware that the citizens will be likely to increase in numbers too rapidly, and he suggests very efficient precautions against it. No child at all deformed or imperfect in frame is to be brought up: children beyond a convenient number, if born, are to be exposed: but should the law of the State forbid such a practice, care must be taken to forestall consciousness and life in them, and to prevent their birth by ἄμβλωσις (vii. 14. 10).

Aristotle establishes two *agora* in his city: one situated near to the harbour, adapted to the buying, selling, and storing of goods, under the surveillance of the agoranomus: the other called the *free agora*, situated in the upper parts of the city, set apart for the amusement and conversation of the citizens, and never defiled by the introduction of any commodities for sale. No artisan or husbandman is ever to enter the latter unless by special order from the authorities. The temples of the Gods, the residences of the various boards of government functionaries, the gymnasia of the older citizens, are all to be erected in this free agora (vii. 11). The Thessalian cities had an agora of this description where no traffic or common occupations were permitted.

The moral tendency of Aristotle's reflections is almost always useful and elevating. The intimate union which he formally recognizes and perpetually proclaims between happiness and virtue, is salutary and instructive: and his ideas of what virtue is, are perfectly just, so far as relates to the conduct of his citizens towards each other: though they are miserably defective

as regards obligation towards non-citizens. He always assigns the proper pre-eminence to wisdom and virtue: he never over-values the advantages of riches, nor deems them entitled on their own account, to any reverence or submission: he allows no title to the obedience of mankind, except that which arises from superior power and disposition to serve them. Superior power and station, as he considers them, involve a series of troubles—some obligations which render them objects of desire only to men of virtue and beneficence. What is more rare and more creditable still, he treats all views of conquest and aggrandizement by a State as immoral and injurious, even to the conquerors themselves.

APPENDIX.

APPENDIX.

I.

THE DOCTRINE OF UNIVERSALS.

THE controversy respecting Universals first obtained its place in philosophy from the colloquies of Sokrates, and the writings and teachings of Plato. We need not here touch upon their predecessors, Parmenides and Herakleitus, who, in a confused and unsystematic manner, approached this question from opposite sides, and whose speculations worked much upon the mind of Plato in determining both his aggressive dialectic and his constructive theories. Parmenides of Elea, improving upon the ruder conceptions of Xenophanes, was the first to give emphatic proclamation to the celebrated Eleatic doctrine, Absolute Ens as opposed to Relative Fientia: *i.e.* the Cogitable, which Parmenides conceived as the One and All of reality, ἓν καὶ πᾶν, enduring and unchangeable, of which the negative was unmeaning,—and the Sensible or Perceivable, which was in perpetual change, succession and multiplicity, without either unity, or reality, or endurance. To the last of these two departments Herakleitus assigned especial prominence. In place of the permanent underlying Ens, which he did not recognize, he substituted a cogitable process of *change*, or generalized concept of what was common to all the successive phases of change—a perpetual stream of generation and destruction, or implication of contraries, in which everything appeared only that it might disappear, without endurance or uniformity. In this doctrine of Herakleitus, the world of sense and particulars could not be the object either of certain knowledge or even of correct probable opinion; in that of Parmenides, it was recognized as an object of probable opinion, though not of certain knowledge. But in both doctrines, as well as in the theories of Demokritus, it was degraded, and presented as incapable of yielding satisfaction to the search of a philosophizing mind, which could find neither truth nor reality except in the world of Concepts and Cogitables.

Besides the two theories above-mentioned, there were current in the Hellenic world, before the maturity of Sokrates, several other veins of speculation about the Kosmos, totally divergent one from the other, and by that very divergence sometimes stimulating curiosity, sometimes discouraging all study as though the problems were hopeless. But Parmenides and Herakleitus, together with the arithmetical and geometrical hypotheses of the Pythagoreans, are expressly noticed by Aristotle as having specially contributed to form the philosophy of Plato.

Neither Parmenides, nor Herakleitus, nor the Pythagoreans were dialecticians. They gave out their own thoughts in their own way, with little or no regard to dissentients. They did not cultivate the art of argumentative attack or defence, nor the correct application and diversified confrontation of universal terms, which are the great instruments of that art. It was Zeno, the disciple of Parmenides, that first employed dialectic in support of his master's theory, or rather against the counter-theories of opponents. He showed by arguments memorable for their subtlety, that the hypothesis of an Absolute, composed of Entia Plura Discontinua, led to consequences even more absurd than those that opponents deduced from the Parmenidean hypothesis of Ens Unum Continuum. The dialectic, thus inaugurated by Zeno, reached still higher perfection in the colloquies of Sokrates; who not only employed a new method, but also introduced new topics of debate—ethical, political, and social matters instead of physical things and the Kosmos.

The peculiar originality of Sokrates is well known: a man who wrote nothing, but passed his life in indiscriminate colloquy with every one; who professed to have no knowledge himself, but interrogated others on matters that they talked about familiarly and professed to know well; whose colloquies generally ended by puzzling the respondents, and

by proving to themselves that they neither knew nor could explain even matters that they had begun by affirming confidently as too clear to need explanation. Aristotle tells us[a] that Sokrates was the first that set himself expressly and methodically to scrutinize the definitions of general or universal terms, and to confront them, not merely with each other, but also, by a sort of inductive process, with many particular cases that were, or appeared to be, included under them. And both Xenophon and Plato give us abundant examples of the terms to which Sokrates applied his interrogatories: What is the Holy? What is the Unholy? What is the Beautiful or Honourable? What is the Ugly or Base? What is Justice—Injustice—Temperance — Madness — Courage — Cowardice — A City—A man fit for civil life? What is the Command of Men? What is the character fit for commanding men? Such are the specimens, furnished by a hearer,[b] of the universal terms whereon the interrogatories of Sokrates bore. All of them were terms spoken and heard familiarly by citizens in the market-place, as if each understood them perfectly; but when Sokrates, professing his own ignorance, put questions asking for solutions of difficulties that perplexed his own mind, the answers showed that these difficulties were equally insoluble by respondents, who had never thought of them before. The confident persuasion of knowledge, with which the colloquy began, stood exposed as a false persuasion without any basis of reality. Such illusory semblance of knowledge was proclaimed by Sokrates to be the chronic, though unconscious, intellectual condition of his contemporaries. How he undertook, as the mission of a long life, to expose it, is impressively set forth in the Platonic Apology.

It was thus by Sokrates that the meaning of universal terms and universal propositions, and the relation of each respectively to particular terms and particular propositions were first made a subject of express enquiry and analytical interrogation. His influence was powerful in imparting the same dialectical impulse to several companions; but most of all to Plato, who not only enlarged and amplified the range of Sokratic enquiry, but also brought the meaning of universal terms into something like system and theory, as a portion of the conditions of trustworthy science. Plato was the first to affirm the doctrine afterwards called Realism, as the fundamental postulate of all true and proved cognition. He affirmed it boldly, and in its most extended sense, though he also produces (according to his frequent practice) many powerful arguments and unsolved objections against it. It was he (to use the striking phrase of Milton[a]) that first imported into the schools the portent of Realism. The doctrine has been since opposed, confuted, curtailed, transformed, diversified in many ways; but it has maintained its place in logical speculation, and has remained, under one phraseology or another, the creed of various philosophers, from that time down to the present.

The following account of the problems of Realism was handed down to the speculations of the mediæval philosophers by Porphyry (between 270–300 A.D.), in his Introduction to the treatise of Aristotle on the Categories. After informing Chrysaorius that he will prepare for him a concise statement of the doctrines of the old philosophers respecting Genus, Differentia, Species, Proprium, Accidens, "abstaining from the deeper enquiries, but giving suitable development to the more simple,"—Porphyry thus proceeds:—"For example, I shall decline discussing, in respect to Genera and Species, (1) Whether they have a substantive existence, or reside merely in naked mental conceptions; (2) Whether, assuming them to have substantive existence, they are bodies or incorporeals; (3) Whether their substantive existence is in and along with the objects of sense, or apart and separable. Upon this task I shall not enter, since it is of the greatest depth, and requires another larger investigation; but shall try at once to show you how the ancients (especially the Peripatetics), with a view to logical discourse, dealt with the topics now propounded."[b]

Before Porphyry, all these three problems had been largely debated, first by Plato, next by Aristotle against Plato, again by the Stoics against both, and lastly by Plotinus and the Neo-Platonists as conciliators of Plato with Aristotle. After Porphyry, problems the same, or similar, continued to stand in the foreground of speculation, until the authority of Aristotle became discredited at all points by the influences of the sixteenth and seventeenth centuries. But in order to find the beginning of them, as questions provoking curiosity and opening dissentient points of view to inventive

[a] Metaphysica, A. p. 987, b. 2; M. p. 1078, b. 18.
[b] Xenophon Memorab. I. i. 16; IV. vi. 1-13.

[a] See the Latin verses 'De Ideâ Platonicâ quemadmodum Aristoteles intellexit'—

"At tu, perenne ruris Academi decus,
Hæc monstra si tu primus induxti scholis," &c.

[b] Porphyry, Introd. in Categor. init. p. 1, a. 1, Schol. Br.

dialecticians, we must go back to the age and the dialogues of Plato.

The real Sokrates (*i.e.* as he is described by Xenophon) inculcated in his conversation steady reverence for the invisible, as apart from and overriding the phenomena of sensible experience; but he interpreted the term in a religious sense, as signifying the agency of the personal gods, employed to produce effects beneficial or injurious to mankind.[a] He also puts forth his dialectical acuteness to prepare consistent and tenable definitions of familiar general terms (of which instances have already been given), at least so far as to make others feel, for the first time, that they did not understand these terms, though they had been always talking like persons that *did* understand. But the Platonic Sokrates (*i.e.* as spokesman in the dialogues of Plato) enlarges both these discussions materially. Plato recognizes, not simply the invisible persons or gods, but also a separate world of invisible, impersonal entities or objects; one of which he postulates as the objective reality, though only a cogitable reality, correlating with each general term. These Entia he considers to be not merely distinct realities, but the only true and knowable realities: they are eternal and unchangeable, manifested by the fact that particulars partake in them, and imparting a partial show of stability to the indeterminate flux of particulars: unless such separate Universal Entia be supposed, there is nothing whereon cognition can fasten, and consequently there can be no cognition at all.[b] These are the substantive, self-existent Ideas, or Forms that Plato first presented to the philosophical world; sometimes with logical acuteness, oftener still with rich poetical and imaginative colouring. They constitute the main body and characteristic of the hypothesis of Realism.

But, though the main hypothesis is the same, the accessories and manner of presentation differ materially among its different advocates. In these respects, indeed, Plato differs not only from others, but also from himself Systematic teaching or exposition is not his purpose, nor does he ever give opinions in his own name. We have from him an aggregate of detached dialogues, in many of which this same hypothesis is brought under discussion, but in each dialogue, the spokesmen approach it from a different side; while in others (distinguished by various critics as the Sokratic dialogues) it does not come under discussion at all, Plato being content to remain upon the Sokratic platform, and to debate the meaning of general terms without postulating in correlation with them an objective reality, apart from their respective particulars.

At the close of the Platonic dialogue called Kratylus, Sokrates is introduced as presenting the hypothesis of self-existent, eternal, unchangeable Ideas (exactly in the way that Aristotle ascribes to Plato) as the counter-proposition to the theory of universal flux and change announced by Herakleitus. Particulars are ever changing (it is here argued) and are thus out of the reach of cognition; but, unless the Universal Ideas above them, such as the Self-beautiful, the Self-good, &c., be admitted as unchangeable, objective realities, there can be nothing either nameable or knowable: cognition becomes impossible.

In the Timæus, Plato describes the construction of the Kosmos by a Divine Architect, and the model followed by the latter in his work. The distinction is here again brought out, and announced as capital, between the permanent, unalterable Entia, and the transient, ever-fluctuating Fientia, which come and go, but never really *are.* Entia are apprehended by the cogitant or intelligent soul of the Kosmos, Fientia by the sentient or percipient soul; the cosmical soul as a whole, in order to suffice for both these tasks, is made up of diverse component elements—Idem, correlating with the first of the two, Diversum, correlating with the second, and Idem implicated with Diversum, corresponding to both in conjunction. The Divine Architect is described as constructing a Kosmos, composed both of soul and body, upon the pattern of the grand pre-existent Idea—αὐτοζῷον or the Self-Animal; which included in itself as a genus the four distinct species—celestial (gods, visible and invisible), terrestrial, aërial, and aquatic.

The main point that Plato here insists upon is—the eternal and unchangeable reality of the cogitable objects called Ideas, prior both in time and in logical order to the transient objects of sight and touch, and serving as an exemplar to which these latter are made to approximate imperfectly. He assumes such priority, without proof, in the case of the Idea of Animal; but, when he touches upon the four elements—Fire, Air, Water, Earth—he hesitates to make the same assumption, and thinks himself required to give a reason for it. The reason that he assigns (announced dis-

[a] Xenophon, Memorab. I. iv. 9-17; IV. iii. 14.

[b] Aristot. Metaphys. A. vi. p. 987, b. 5; M. iv. p. 1078, b. 15.

tinctly as his own) is as follows: If Intellection (Cogitation, Νοῦς) and true Opinion are two genera distinct from each other, there must clearly exist Forms or Ideas imperceptible to our senses, and apprehended only by cogitation or intellection; but if, as some persons think, true opinion is noway different from intellection, then we must admit all the objects perceived by our senses as firm realities. Now the fact is (he proceeds to say) that true opinion is not identical with intellection, but quite distinct, separate, and unlike to it. Intellection is communicated by teaching, through true reasoning, and is unshakeable by persuasion; true opinion is communicated by persuasion and removed by counter-persuasion, without true reasoning. True opinion may belong to any man; but intellection is the privilege only of gods and of a small section of mankind. Accordingly, since the two are distinct, the objects correlating with each of them must also be distinct from each other. There must exist, first, primary, eternal, unchangeable Forms, apprehended by intellect or cogitation, but imperceptible by sense; and, secondly, resemblances of these bearing the same name, generated and destroyed each in some place, and apprehended first by sense, afterwards by opinion. Thirdly, there must be the place wherein such resemblances are generated; a place itself imperceptible by sense yet postulated, as a receptacle indispensable for them, by a dreamy kind of computation.

We see here that the proof given by Plato, in support of the existence of Forms as the primary realities, is essentially psychological: resting upon the fact, that there is a distinct mental energy or faculty called Intellection (apart from Sense and Opinion), which must have its distinct objective correlate; and upon the farther fact, that intellection is the high prerogative of the gods, shared only by a few chosen men. This last point of the case is more largely and emphatically brought out in the Phædrus, where Sokrates delivers a highly poetical effusion respecting the partial intercommunion of the human soul with these eternal intellectual realities. To contemplate them is the constant privilege of the gods; to do so is also the aspiration of the immortal soul of man generally, in the pre-existent state, prior to incorporation with the human body; though only in a few cases is such aspiration realized. Even those few human souls, that have succeeded in getting sight of the intellectual Ideas (essences without colour, figure, or tactile properties), lose all recollection of them when first entering into partnership with a human body; but are enabled gradually to recall them, by combining repeated impressions and experience of their resemblances in the world of sense. The revival of these divine elements is an inspiration of the nature of madness; though it is a variety of madness as much better than uninspired human reason as other varieties are worse. The soul, becoming insensible to ordinary pursuits, contracts a passionate devotion to these Universal Ideas, and to that dialectical communion, especially with some pregnant youthful mind, that brings them into clear separate contemplation disengaged from the limits and confusion of sense.

Here philosophy is presented as the special inspiration of a few, whose souls during the period of pre-existence have sufficiently caught sight of the Universal Ideas or Essences; so that these last, though overlaid and buried when the soul is first plunged in a body, are yet revivable afterwards under favourable circumstances, through their imperfect copies in the world of sense; especially by the sight of personal beauty in an ingenuous and aspiring youth, in which case the visible copy makes nearest approach to the perfection of the Universal Idea or Type. At the same time, Plato again presents to us the Cogitable Universals as the only objects of true cognition, the Sensible Particulars being objects merely of opinion.

In the Phædon, Sokrates advances the same doctrine, that the preceptions of sense are full of error and confusion, and can at best suggest nothing higher than opinion; that true cogitation can never be attained except when the cogitant mind disengages itself from the body and comes into direct contemplation of the Universal Entia, objects eternal and always the same—The Self-beautiful, Self-good, Self-just, Self-great, Healthy, Strong, &c., all which objects are invisible, and can be apprehended only by the cogitation or intellect. It is this Cogitable Universal that is alone real; Sensible Particulars are not real, nor lasting, nor trustworthy. None but a few philosophers, however, can attain to such pure mental energy during this life; nor even they fully and perfectly. But they will attain it fully after death (their souls being immortal), if their lives have been passed in sober philosophical training. And their souls enjoyed it before birth during the period of pre-existence; having acquired, before junction with the body, the knowledge of these Universals, which are forgotten during childhood, but recalled in the way of Reminiscence, by sensible perceptions

that make a distant approach to them. Thus, according to the Phædon and some other dialogues, all learning is merely reminiscence; the mind is brought back, by the laws of association, to the knowledge of Universal Realities that it had possessed in its state of pre-existence. Particulars of sense participate in these Universals to a certain extent, or resemble them imperfectly; and they are therefore called by the same name.

In the Republic, we have a repetition and copious illustration of this antithesis between the world of Universals or Cogitables, which are the only unchangeable realities and the only objects of knowledge,—and the world of Sensible Particulars, which are transitory and confused shadows of these Universals, and are objects of opinion only. Full and real Ens is knowable, Non-Ens is altogether unknowable; what is midway between the two is matter of opinion, and in such midway are the Particulars of sense.[a] Respecting these last, no truth is attainable: whenever you affirm a proposition respecting any of them, you may with equal truth affirm the contrary at the same time. Nowhere is the contrast between the Universals or real Ideas (among which the Idea of Good is the highest, predominant over all the rest), and the unreal Particulars, or Percepta, of Sense, more forcibly insisted upon than in the Republic. Even the celestial bodies and their movements, being among these Percepta of sense, are ranked among phantoms interesting but useless to observe; they are the best of all Percepta, but they fall very short of the perfection that the mental eye contemplates in the Ideal—in the true Figures and Numbers, in the real Velocity and the real Slowness. In the simile commencing the seventh book of the Republic, Plato compares mankind to prisoners in a cave, chained in one particular attitude, so as to behold only an ever-varying multiplicity of shadows, projected, through the opening of the cave upon the wall before them, by certain unseen realities behind. The philosopher is one among a few, who by training or inspiration, have been enabled to face about from this original attitude, and to contemplate with his mind the real unchangeable Universals, instead of having his eye fixed upon their particular manifestations, at once shadowy and transient. By such mental revolution he comes round from the Percivable to the Cogitable, from Opinion to Knowledge.

The distinction between these two is further argued in the elaborate dialogue called Theætetus, where Sokrates, trying to explain what Knowledge or Cognition is, refutes three proposed explanations and shows, to his own satisfaction, that it is not sensible perception, that it is not true opinion, that it is not true opinion coupled with rational explanation. But he confesses himself unable to show what Knowledge or Cognition is, though he continues to announce it as correlating with Realities Cogitable and Universal only.[a]

In the passages above noticed, and in many others besides, we find Plato drawing a capital distinction between Universals eternal and unchangeable (each of them a Unit as well as a Universal),[b] which he affirms to be the only real Entia,—and Particulars transient and variable, which are not Entia at all, but are always coming or going; the Universals being objects of cogitation and of a psychological fact called Cognition, which he declares to be infallible; and the Particulars being objects of Sense, and of another psychological fact radically different, called Opinion, which he pronounces to be fallible and misleading. Plato holds, moreover, that the Particulars, though generically distinct and separate from the Universals, have nevertheless a certain communion or participation with them, by virtue of which they become half existent and half cognizable, but never attain to full reality or cognizability.

This is the first statement of the theory of complete and unqualified Realism, which came to be known in the Middle Ages under the phrase *Universalia ante rem* or *extra rem*, and to be distinguished from the two counter-theories *Universalia in re* (Aristotelian), and *Universalia post rem* (Nominalism). Indeed the Platonic theory goes even farther than the phrase *Universalia ante rem*, which recognizes the particular as a reality, though posterior and derivative; for Plato attenuates it into phantom and shadow. The problem was now clearly set out in philosophy—What are the objects correlating with Universal terms, and with Particular terms? What is the relation between the two? Plato first gave to the world the solution called Realism, which lasted so long after his time. We shall presently find Aristotle taking issue with him on both the affirmations included in his theory.

But though Plato first introduced this

[a] Plato, Republic. v. pp. 477, 478.

[a] Plato, Theætêt. pp. 173, 176, 186. Grote's Plato, II. xxvi. pp. 370-395.

[b] Plato, Philêbus, p. 15, A. B.; Republic, x. p. 596, A. The phrase of Milton, "unus et universus," expresses this idea; also the lines:—

"Sed quamlibet natura sit communior,
Tamen seorsus extat ad modum unius," &c.

theory into philosophy, he was neither blind to the objections against it, nor disposed to conceal them. His mind was at once poetically constructive and dialectically destructive; to both these impulses the theory furnished ample scope, while the form of his compositions (separate dialogues, with no mention of his own name) rendered it easy to give expression either to one or to the other. Before Aristotle arose to take issue with him, we shall find him taking issue with himself, especially in the dialogues called Sophistes and Parmenides, not to mention the Philêbus, wherein he breaks down the unity even of his sovereign Idea, which in the Republic governs the Cogitable World,—the Idea of Good.[a]

Both in the Sophistes and in the Parmenides, the leading disputant introduced by Plato is not Sokrates, but Parmenides and another person (unnamed) of the Eleatic school. In both dialogues objections are taken against the Realistic theory elsewhere propounded by Plato, though the objections adduced in the one are quite distinct from those noticed in the other. In the Sophistes, the Eleatic reasoner impugns successfully the theories of two classes of philosophers, one the opposite of the other: first, the Materialists, who recognized no Entia except the Percepta of Sense; next, the Realistic Idealists, who refused to recognize these last as real Entia, or as anything more than transient and mutable Generata or Fientia, while they confined the title of Entia to the Forms, cogitable, incorporeal, eternal, immutable, neither acting on anything, nor acted upon by anything. These persons are called in the Sophistes "Friends of Forms," and their theory is exactly what we have already cited out of so many other dialogues of Plato, drawing the marked line of separation between Entia and Fientia; between the Immutable, which alone is real and cognizable, and the Mutable, neither real nor cognizable. The Eleate in the Sophistes controverts this Platonic theory and maintains that among the Universal Entia there are included items mutable as well as immutable; that both are real and both cognizable; that Non-Ens (instead of being set in glaring contrast with Ens, as the totally incogitable against the infallibly cognizable)[b] is one among the multiplicity of Real Forms, meaning only what is different from Ens, and therefore cognizable not less than Ens; that Percepta and Cogitata are alike real, yet both only relatively real, correlating with minds percipient and cogitant. Thus, the reasoning in the Sophistes, while it sets aside the doctrine of *Universalia ante rem*, does not mark out any other relation between Universals and Particulars (neither *in re* nor *post rem*). It discusses chiefly the intercommunion or reciprocal exclusion of Universals with respect to each other; and upon this point, far from representing them as objects of infallible Cognition as contrasted with Opinion, it enrolls both Opinion and Discourse among the Universals themselves, and declares both of them to be readily combinable with Non-Ens and Falsehood. So that we have here error and fallibility recognized in the region of Universals, as well as in that of Particulars.

But it is principally in the dialogue Parmenides that Plato discusses with dialectical acuteness the relation of Universals to their Particulars; putting aside the intercommunion (affirmed in the Sophistes) or reciprocal exclusion between one Universal and another, as an hypothesis at least supremely difficult to vindicate, if at all admissible.[a] In the dialogue, Sokrates is introduced in the unusual character of a youthful and ardent aspirant in philosophy, defending the Platonic theory of Ideas as we have seen it proclaimed in the Republic and in the Timæus. The veteran Parmenides appears as the opponent to cross examine him; and not only impugns the theory by several interrogatories which Sokrates cannot answer, but also intimates that there remain behind other objections equally serious requiring answer. Yet at the same time he declares that, unless the theory be admitted, and unless *Universalia ante rem* can be sustained as existent, there is no trustworthy cognition attainable, nor any end to be served by philosophical debate. Moreover, Parmenides warns Sokrates that, before he can acquire a mental condition competent to defend the theory, he must go through numerous preliminary dialectical exercises; following out both the affirmative and the negative hypothesis in respect to a great variety of Universals severally. To illustrate the course prescribed, Parmenides gives a long specimen of this dialectic in handling his own doctrine of Ens Unum. He takes first the hypothesis *Si Unum est*, next the hypothesis *Si Unum non est;* and he deduces from each, by ingenious subtleties, double and contradictory conclusions. These he sums up at the end, challenging

[a] Plato, Philêbus, pp. 65, 66. See Grote's Plato, II. xxx. pp. 584, 585.

[b] Plato, Republic, v. pp. 478, 479.

[a] Plato, Parmenid. p. 129, E.; with Stallbaum's Prolegomena to that dialogue, pp. 38-42.

Sokrates to solve the puzzles before affirming his thesis.

Apart from these antinomies at the close of the dialogue, the cross-examination of Sokrates by Parmenides, in the middle of it, brings out forcibly against the Realistic theory objections such as those urged against it by the Nominalists of the Middle Ages. In the first place, we find that Plato conceived the theory itself differently from Porphyry and the philosophers that wrote subsequently to the Peripatetic criticism. Porphyry and his successors put the question, Whether Genera and Species had a separate existence, apart from the Individuals composing them? Now, the world of Forms (the Cogitable or Ideal world as opposed to the Sensible) is not here conceived by Plato as peopled in the first instance by Genera and Species. Its first tenants are *Attributes*, and attributes distinctly *relative* — Likeness, One and Many, Justice, Beauty, Goodness, &c. Sokrates, being asked by Parmenides whether he admits Forms corresponding with these names, answers unhesitatingly in the affirmative. He is next asked whether he admits forms corresponding to the names Man, Fire, Water, &c., and, instead of replying in the affirmative, intimates that he does not feel sure. Lastly, the question is put whether there are Forms corresponding to the names of mean objects—Mud, Hair, Dirt, &c. At first he answers emphatically in the negative, and treats the affirmative as preposterous; there exist no cogitable Hair, &c., but only the object of sense that we so denominate. Yet, on second thoughts, he is not without misgiving that there may be Forms even of these; though the supposition is so repulsive to him that he shakes it off as much as he can. Upon this last expression of sentiment Parmenides comments, ascribing it to the juvenility of Sokrates, and intimating that, when Sokrates has become more deeply imbued with philosophy, he will cease to set aside any of these objects as unworthy.

Here we see that, in the theory of Realism as conceived by Sokrates, the Self-Existent Universals are not Genera and Species as such, but Attributes—not Second Substances or Essences, but Accidents or Attributes, *e.g.* Quality, Quantity, Relation, &c., to use the language afterwards introduced in the Aristotelian Categories; that no Genera or Species are admitted except with hesitation; and that the mean and undignified among them are scarcely admissible at all. This sentiment of dignity, associated with the *Universalia ante rem*, and emotional necessity for tracing back particulars to an august and respected origin, is to be noted as a marked and lasting feature of the Realistic creed; and it even passed on to the *Universalia in re*, as afterwards affirmed by Aristotle. Parmenides here takes exception to it (and so does Plato elsewhere [a]) as inconsistent with faithful adherence to scientific analogy.

Parmenides then proceeds (interrogating Sokrates) first to state what the Realistic theory is (Universals apart from Particulars—Particulars apart from Universals, yet having some participation in them, and named after them), next to bring out the difficulties attaching to it. The Universal or Form (he argues) cannot be entire in each of its many separate particulars; nor yet is it divisible, so that a part can be in one particular, and a part in another. For take the Forms Great, Equal, Small; Equal magnitudes are equal because they partake in the Form of Equality. But how can a part of the Form Equality, less than the whole Form, cause the magnitudes to be equal? How can the Form Smallness have any parts less than itself, or how can it be greater than anything?

The Form cannot be divided, nor can it co-exist undivided in each separate particular; accordingly, particulars can have no participation in it at all.

Again, you assume a Form of Greatness, because you see many particular objects, each of which appears to you great; this being the point of resemblance between them But if you compare the Form of Greatness with any or all of the particular great objects, you will perceive a resemblance between them; this will require you to assume a higher Form, and so on upward without limit.

Sokrates, thus embarrassed, starts the hypothesis that perhaps each of these Forms may be a cogitation, and nothing more, existing only within the mind. How? rejoins Parmenides. Can there be a cogitation of nothing at all? Must not each cogitation have a real *cogitatum* correlating with it,—in this case, the one Form that is identical throughout many particulars? If you say that particulars partake in the Form, and that each Form is nothing but a cogitation, does not this imply that each particular is itself cogitant?

Again Sokrates urges that the Forms are constant, unalterable, stationary in nature; that particulars resemble them, and participate in them only so far as to resemble them. But (rejoins Parmenides), if particulars resemble the Form,

[a] Plato, Sophist. p. 227, A. Politikus, p. 266, D.

the Form must resemble them; accordingly, you must admit another and higher Form, as the point of resemblance between the Form and its particulars; and so on, upwards.

And farther (continues Parmenides), even when admitting these Universal Forms as self-existent, how can we know anything about them? Forms can correlate only with Forms, Particulars only with Particulars. Thus, if I, an individual man, am master, I correlate with another individual man, who is my servant, and he on his side with me. But the Form of mastership, the Universal self-existent Master, must correlate with the Form of servantship, the Universal Servant. The correlation does not subsist between members of the two different worlds, but between different members of the same world respectively. Thus the Form of Cognition correlates with the Form of Truth; and the Form of each variety of Cognition, with the Form of the corresponding variety of Truth. But we, as individual subjects, do not possess in ourselves the Form of Cognition; our cognition is our own, correlating with such truth as belongs to it and to ourselves. Our cognition cannot reach to the Form of Truth, nor therefore to any other Form; we can know nothing of the Self-good, Self-beautiful, Self-just, &c., even supposing such Forms to exist.

These acute and subtle arguments are nowhere answered by Plato. They remain as unsolved difficulties, embarrassing the Realistic theory; they are reinforced by farther difficulties no less grave, included in the dialectical antinomies of Parmenides at the close of the dialogue, and by an unknown number of others indicated as producible, though not actually produced. Yet still Plato, with full consciousness of these difficulties, asserts unequivocally that, unless the Realistic theory can be sustained, philosophical research is fruitless, and truth cannot be reached. We see thus that the author of the theory has also left on record some of the most forcible arguments against it. It appears from Aristotle (though we do not learn the fact from the Platonic dialogues), that Plato, in his later years, symbolized the Ideas or Forms under the denomination of Ideal Numbers, generated by implication of The One with what he called The Great and Little, or the Indeterminate Dyad. This last, however, is not the programme wherein the Realistic theory stands opposed to Nominalism.

But the dialogue Parmenides, though full of acuteness on the negative side, not only furnishes no counter-theory, but asserts continued allegiance to the Realistic theory, which passes as Plato's doctrine to his successors. To impugn, forcibly and even unanswerably, a theory at once so sweeping and so little fortified by positive reasons, was what many dialecticians of the age could do. But to do this, and at the same time to construct a counter-theory, was a task requiring higher powers of mind. One, however, of Plato's disciples and successors was found adequate to the task—Aristotle.

The Realistic Ontology of Plato is founded (as Aristotle himself remarks) upon mistrust and contempt of perception of sense, as bearing entirely on the flux of particulars, which never stand still so as to become objects of knowledge. All reality, and all cognoscibility, were supposed to reside in the separate world of Cogitable Universals (*extra rem* or *ante rem*), of which, in some confused manner, particulars were supposed to partake. The Universal, apart from its particulars, was clearly and fully knowable, furnishing propositions constantly and infallibly true: the Universal as manifested in its particulars was never fully knowable, nor could ever become the subject of propositions, except such as were sometimes true and sometimes false.

Against this separation of the Universal from its Particulars, Aristotle entered a strong protest; as well as against the subsidiary hypothesis of a participation of the latter in the former; which participation, when the two had been declared separate, appeared to him not only untenable and uncertified, but unintelligible. His arguments are interesting, as being among the earliest objections known to us against Realism.

1. Realism is a useless multiplication of existences, serving no purpose. Wherever a number of particulars—be they substances, eternal or perishable, or be they qualities, or relations—bear the same name, and thus have a Universal *in re* predicable of them in common, in every such case Plato assumes a Universal *extra rem*, or a separate self-existent Form; which explains nothing, and merely doubles the total to be summed up.[a]

2. Plato's arguments in support of Realism are either inconclusive, or prove too much. Wherever there is cognition (he argues), there must exist an eternal and unchangeable object of cognition, apart from particulars, which are change-

[a] Aristot. Metaph. A. ix. p. 990, a. 34; M. iv. p. 1079, a. 2. Here we have the first appearance of the argument that William of Ockham, the Nominalist, put in the foreground of his case against Realism: "Entia non sunt multiplicanda præter necessitatem."

able and perishable. No, replies Aristotle: cognition does not require the *Universale extra rem;* for the *Universale in re*, the constant predicate of all the particulars, is sufficient as an object of cognition. Moreover, if the argument were admitted, it would prove that there existed separate Forms or Universals of mere negations; for many of the constant predicates are altogether negative. Again, if Self-existent Universals are to be assumed corresponding to all our cogitations, we must assume Universals of extinct particulars, and even of fictitious particulars, such as hippocentaurs or chimeras; for of these, too, we have phantasms or concepts in our minds.[a]

3. The most subtle disputants on this matter include Relata, among the Universal Ideas or Forms. This is absurd, because these do not constitute any Genus by themselves. These disputants have also urged against the Realistic theory that powerful and unsolved objection, entitled "The Third Man."[b]

4. The supporters of these Self-existent Universals trace them to two *principia*—The One, and the Indeterminate Dyad; which they affirm to be prior in existence even to the Universals themselves. But this cannot be granted; for the Idea of Number must be logically prior to the Idea of the Dyad; but the Idea of Number is relative, and the Relative can never be prior to the Absolute or Self-existent.

5. If we grant that, wherever there is one constant predicate belonging to many particulars, or wherever there is stable and trustworthy cognition, in all such cases a Self-existent Universal Correlate *extra rem* is to be assumed, we shall find that this applies not merely to Substances or Essences, but also to the other Categories—Quality, Quantity, Relation, &c. But hereby we exclude the possibility of participation in them by Particulars; since from such participation the Particular derives its Substance or Essence alone, not its accidental predicates. Thus the Self-existent Universal Dyad is eternal: but a particular pair, which derives its essential property of doubleness from partaking in this Universal Dyad, does not at the same time partake of eternity, unless by accident. Accordingly, there are no Universal Ideas, except of Substances or Essences: the common name, when applied to the world of sense and to that of cogitation, signifies the same thing—Substance or Essence. It is unmeaning to talk of anything else as signified—any other predicate common to many. Well then, if the Form of the

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[a] Aristot. Metaphys. Α. ix. p. 990, b. 14; Scholia, p. 565, b. 9, Br.

[b] Aristot. Metaph. Α. ix. p. 990, b. 15: *οἱ ἀκριβέστεροι τῶν λόγων*. Both the points here noticed appear in the Parmenides of Plato.

The objection called "The Third Man" is expressed by saying that, if there be a Form of man, resembling individual men, you must farther postulate some higher Form, marking the point of resemblance between the two; and so on higher, without end.

The authenticity of the Platonic Parmenides is disputed by Ueberweg (Untersuchungen über die Echtheit und Zeitfolge der Platonischen Schriften, pp. 176-181), upon the ground (among others) that, while Aristotle never cites the dialogue by its title, nor ever makes probable allusion to it, the Parmenides advances against the theory of the Platonic Ideas this objection of Aristotle's, known under the name of "The Third Man." Aristotle (says Ueberweg), if he had known the Parmenides, would not have advanced this objection as his own. We must therefore suppose that the Parmenides was composed later than Aristotle, and borrowed this objection from Aristotle.

In reply to this argument I transcribe the passage of Aristotle (Metaphys. Α. ix. p. 990, b. 15) to which Ueberweg himself refers: *ἔτι δὲ οἱ ἀκριβέστεροι τῶν λόγων οἱ μὲν τῶν πρός τι ποιοῦσιν ἰδέας, ὧν οὔ φαμεν εἶναι καθ' αὑτὸ γένος, οἱ δὲ τὸν τρίτον ἄνθρωπον λέγουσιν*. The same words (with the exception of *φασίν* in place of *φαμέν*) are repeated in M. p. 1079, a. 11.

Now these words plainly indicate that Aristotle does not profess to advance the objection, called *ὁ τρίτος ἄνθρωπος*, as his own, or as broached by himself. He derives it from what he calls *οἱ ἀκριβέστεροι τῶν λόγων*. The charge against Aristotle, therefore, of advancing as his own an objection which had already been suggested by Plato himself in the Parmenides, is unfounded. And it is the more unfounded, because Aristotle in the first book of the Metaphysica, speaks in the language of a Platonist, and considers himself as partly responsible for the doctrine of Ideas: *δείκνυμεν, φαμέν, οἰόμεθα*, &c. (Alexand. in Schol. p. 563, p. 27, Brand.)

But what are we to understand by these words —*οἱ ἀκριβέστεροι τῶν λόγων*—from which Aristotle derives the objection? The words refer to certain expositions or arguments (oral, or written, or both) which were within the knowledge of Aristotle, and were of a peculiarly subtle and analytical character. Among them is very probably included the Platonic Parmenides itself, distinguished as it is for extreme subtlety. (See Stallbaum's Prolegg. pp. 249, 277, 337, who says, "In uno ferè Parmenide idearum doctrina subtilius investigatur.") I see no reason why it should not be included within the fair and reasonable meaning of the words. And such being the case, I cannot go along with Ueberweg (and other critics) who say that Aristotle has not even made an indirect allusion to the Parmenides.

But why did not Aristotle specify the Parmenides directly and by name? I do not know what was his reason. We may feel surprise (as Stallbaum feels, p. 337) that he does not; but, when critics infer from the omission that he did not know the dialogue as a work of Plato, I contest the inference. We see that Alexander, in his elaborate commentary (p. 566, Schol. Brand.) makes no allusion to the Parmenides, though he alludes to Eudêmus, to Diodôrus, Kronus, and to the manner in which the objection called *ὁ τρίτος ἄνθρωπος* was handled by various Sophists. Now we are fully assured that the Parmenides was acknowledged as a work of Plato, long before the time of Alexander (since it is included in the catalogue of Thrasyllus); yet he, the most instructed of all the commentators, makes no allusion to it. Why he did not, I cannot say, but his omission affords no ground for concluding that he did not know it, or did not trust its authenticity.

Universals and the Form of those Particulars that participate in the Universals be the same, we shall have something common to both the one and the other, so that the objection called "The Third Man" will become applicable, and a higher Form must be postulated. But, if the Form of the Universals and the Form of the participating Particulars, be not identical, then the same name, as signifying both, will be used equivocally; just as if you applied the same denomination man to Kallias and to a piece of wood, without any common property to warrant it.

6. But the greatest difficulty of all is to understand how these Cogitable Universals, not being causes of any change or movement, contribute in any way to the objects of sense, either to the eternal or to the perishable; or how they assist us towards the knowledge thereof, being not in them, and therefore not their substance or essence; or how they stand in any real relation to their participants, being not immanent therein. Particulars certainly do not proceed from these Universals, in any intelligible sense. To say that the Universals are archetypes, and that Particulars partake in them, is unmeaning, and mere poetic metaphor. For where is the working force to mould them in conformity with the Universals? Any one thing may *be* like, or may *become* like, to any other particular thing, by accident, or without any regular antecedent cause to produce such assimilation. The same particular substance, moreover, will have not one universal archetype only, but several. Thus, the same individual man will have not only the Self-animal and the Self-biped, but also the Self-man, as archetype. Then again, there will be universal archetypes, not merely for particular sensible objects, but also for Universals themselves; thus the genus will be an archetype for its various species; so that the same which is now archetype will, under other circumstances, be copy.

7. Furthermore, it seems impossible that what is Substance or Essence can be separate from that whereof it is the substance or essence. How then can the Universals, if they be the essences of sensible things, have any existence apart from those sensible things? Plato tells us in the Phædon, that the Forms or Universals are the causes why particulars both exist at all, and come into such or such modes of existence. But even if we assume Universals as existing, still the Particulars participant therein will not come into being, unless there be some efficient cause to produce movement; moreover, many other things come into being, though there be no Universals correlating therewith, *e.g.* a house, or a ring. The same causes that were sufficient to bring these last into being, will be sufficient to bring all particulars into being, without assuming any Universals *extra rem* at all.

8. Again, if the Universals or Forms are Numbers, how can they ever be causes? Even if we suppose Particulars to be Numbers also, how can one set of Numbers be causes to the others? There can be no such causal influence, even if one set be eternal, and the other perishable.[a]

Out of the many objections raised by Aristotle against Plato, we have selected such as bear principally upon the theory of Realism; that is, upon the theory of *Universalia ante rem* or *extra rem*—self-existent, archetypal, cogitable substances in which Particulars faintly participate. The objections are not superior in acuteness, and they are decidedly inferior, in clearness of enunciation, to those that Plato himself produces in the Parmenides. Moreover, several of them are founded upon Aristotle's point of view, and would have failed to convince Plato. The great merit of Aristotle is, that he went beyond the negative of the Parmenides, asserted this new point of view of his own, and formulated it into a counter-theory. He rejected altogether the separate and exclusive reality which Plato had claimed for his Absolutes of the cogitable world, as well as the derivative and unreal semblance that alone Plato accorded to the sensible world. Without denying the distinction of the two, as conceivable and nameable, he maintained that truth and cognition required that they should be looked at in implication with each other. And he went even a step farther, in antithesis to Plato, by reversing the order of the two. Instead of considering the Cogitable Universals alone as real and complete in themselves, and the Sensible Particulars as degenerate and confused semblances of them, he placed complete reality in the Sensible Particulars alone.[b]

[a] Aristot. Metaph. A. p. 991, b. 13. Several other objections are made by Aristotle against that variety of the Platonic theory wherein the Ideas were commuted into Ideal Numbers. These objections do not belong to the controversy of Realism against Nominalism.

[b] Aristotle takes pains to vindicate against both Plato and the Herakleiteans the dignity of the Sensible World. They that depreciate sensible objects as perpetually changing, unstable, and unknowable, make the mistake (he observes) of confining their attention to the sublunary interior of the Kosmos, where, indeed, generation and destruction largely prevail. But this is only a small portion of the entire Kosmos. In the largest portion—the visible, celestial, superlunary regions—there is no

and treated the Cogitable Universals as contributory appendages thereto; some being essential, others non-essential, but all of them relative, and none of them independent integers. His philosophy was a complete revolution as compared with Parmenides and Plato; a revolution, too, the more calculated to last, because he embodied it in an elaborate and original theory of Logic, Metaphysics, and Ontology. He was the first philosopher that, besides recognizing the equivocal character of those general terms whereon speculative debate chiefly turns, endeavoured methodically to set out and compare the different meanings of each term, and their relations to each other.

However much the Ontology of Aristotle may fail to satisfy modern exigencies, still, as compared with the Platonic Realism, it was a considerable improvement. Instead of adopting Ens as a self-explaining term, contrasted with the Generated and Perishable (the doctrine of Plato in the Republic, Phædon, and Timæus), he discriminates several distinct meanings of Ens; a discrimination not always usefully pursued, but tending in the main towards a better theory. The distinction between Ens potential, and Ens actual, does not belong directly to the question between Realism and Nominalism, yet it is a portion of that philosophical revolution wrought by Aristotle against Plato—displacement of the seat of reality, and transfer of it from the Cogitable Universal to the Sensible Particular. The direct enunciation of this change is contained in his distinction of Ens into Fundamental and Concomitant (συμβεβηκός), and his still greater refinement on the same principle by enumerating the ten varieties of Ens called Categories or Predicaments.[a] He will not allow Ens (nor Unum) to be a genus, partible into species: he recognizes it only as a word of many analogous meanings, one of them principal and fundamental, the rest derivative and subordinate thereto, each in its own manner. Aristotle thus establishes a graduated scale of Entia, each having its own value and position, and its own mode of connexion with the common centre. That common centre Aristotle declared to be of necessity some individual object—Hoc Aliquid, That Man, This Horse, &c. This was the common subject, to which all the other Entia belonged as predicates, and without which none of them had any reality. We here fall into the language of Logic, the first theory of which we owe to Aristotle. His ontological classification was adapted to that theory.

As we are here concerned only with the different ways of conceiving the relation between the Particular and the Universal, we are not called on to criticize the well-known decuple enumeration of Categories or Predicaments given by Aristotle, both in his treatise called by that name and elsewhere. For our purpose it is enough to point out that the particular sensible Hoc Aliquid is declared to be the ultimate subject, to which all Universals attach, as determinants or accompaniments; and that, if this condition be wanting, the unattached Universal cannot rank among complete Entia. The subject or First Substance, which can never become a predicate, is established as the indispensable ultimate subject for all predicates; if that disappears, all predicates disappear along with it. The Particular thus becomes the keystone of the arch whereon all Universals rest. Aristotle is indeed careful to point out a gradation in these predicates: some are essential to the subject, and thus approach so near to the First Substance that he calls them Second Substances: others, and the most in number, are not thus essential; these last are Concomitants or Accidents, and some of them fall so much short of complete Entity that he describes them as near to Non-Entia.[a] But all of them, essential or unessential, are alike constituents or appendages of the First Substance or Particular Subject, and have no reality in any other character.

We thus have the counter-theory of Aristotle against the Platonic Realism. Instead of separate Universal Substances, containing in themselves full reality, and forfeiting much of that reality when they faded down into the shadowy copies called Particulars, he inverts the Platonic order, announces full reality to be the privilege of the Particular Sensible, and confines the function of the Universal

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generation or destruction at all, nothing but permanence and uniformity. In appreciating the sensible world (Aristotle says) philosophers ought to pardon the shortcomings of the smaller portion on account of the excellences of the larger; and not condemn both together on account of the smaller (Metaphys. Γ. v. p. 1010, a. 30).

[a] In enumerating the Ten Categories, Aristotle takes his departure from the Proposition—*Homo currit—Homo vincit*. He assumes a particular individual as subject; and he distributes, under ten general heads, all the information that can be asked or given about that subject—all the predicates that can be affirmed or denied thereof. [See Ch. iii., especially p. 73, seq.]

[a] Aristot. Metaph. E. p. 1026, b. 21: φαίνεται γὰρ τὸ συμβεβηκὸς ἐγγύς τι τοῦ μὴ ὄντος.

There cannot be a stronger illustration of the difference between the Platonic and the Aristotelian point of view, than the fact that Plato applies the same designation to all particular objects of sense—that they are only midway between Entia and Non-Entia (Republic, v. pp. 478-479).

to that of a predicate, in or along with the Particular. There is no doctrine that he protests against more frequently than the ascribing of separate reality to the Universal. The tendency to do this, he signalizes as a natural but unfortunate illusion, lessening the beneficial efficacy of universal demonstrative reasoning.[a] And he declares it to be a corollary from this view of the Particular as indispensable subject along with the Universal as its predicate—That the first principles of Demonstration in all the separate theoretical sciences must be obtained by Induction from particulars: first by impressions of sense preserved in the memory; then by multiplied remembrances enlarged into one experience; lastly, by many experiences generalized into one principle by the Noûs.[b]

While Aristotle thus declares Induction to be the source from whence Demonstration in these separate sciences draws its first principles, we must at the same time acknowledge that his manner of treating Science is not always conformable to this declaration, and that he often seems to forget Induction altogether. This is the case not only in his First Philosophy, or Metaphysics, but also in his Physics. He there professes to trace out what he calls beginnings, causes, elements, &c., and he analyses most of the highest generalities. Yet still these analytical enquiries (whatever be their value) are usually, if not always, kept in subordination to the counter-theory that he had set up against the Platonic Realism. Complete reality resides (he constantly repeats) only in the particular sensible substances and sensible facts or movements that compose the aggregate Kosmos: which is not generated, but eternal, both as to substance and as to movement. If these sensible substances disappear, nothing remains. The beginnings and causes exist only relatively to these particulars. Form, Matter, Privation, are not real Beings, antecedent to the Kosmos, and pre-existent generators of the substances constituting the Kosmos; they are logical fragments or factors, obtained by mental analysis and comparison, assisting to methodize our philosophical point of view or conception of those substances, but incapable of being understood, and having no value of their own, apart from the substances. Some such logical analysis (that of Aristotle or some other) is an indispensable condition even of the most strictly inductive philosophy.

There are some portions of the writings of Aristotle (especially the third book De Animâ and the twelfth book of the Metaphysica) where he appears to lose sight of the limit here indicated; but, with few exceptions, we find him constantly remembering, and often repeating, the great truth formulated in his Categories: that full or substantive reality resides only in the Hoc Aliquid, with its predicates implicated with it, and that even the highest of these predicates (Second Substances) have no reality apart from some one of their particulars. We must recollect that, though Aristotle denies to the predicates a *separate* reality, he recognizes in them an *adjective* reality, as accompaniments and determinants: he contemplates all the ten Categories as distinct varieties of existence.[a] This is sufficient as a basis for abstraction, whereby we can name them and reason upon them as distinct objects of thought or points of view, although none of them come into reality except as implicated with a sensible particular. Of such reasoning Aristotle's First Philosophy chiefly consists; and he introduces peculiar phrases to describe this distinction of reason between two different points of view, where the real object spoken of is one and the same. The frequency of the occasions taken to point out that distinction marks his anxiety to keep the First Philosophy in harmony with the theory of Reality announced in his Categories.

The Categories of Aristotle appear to have become more widely known than any other part of his philosophy. They were much discussed by the sects coming after him; and, even when not adopted, were present to speculative minds as a scheme to be amended.[b] Most of the arguments turned upon the nine later Categories: it was debated whether these were properly enumerated and discriminated, and whether the enumeration as a whole was exhaustive.

With these details, however, the question between Realism and its countertheory (whether Conceptualism or Nominalism) is not materially concerned. The standard against Realism was raised by Aristotle in the First Category, when he proclaimed the Hoc Aliquid to be the only complete Ens, and the Universal to

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[a] Aristot. Analyt. Poster. I. xxiv. p. 85, a. 31, b. 19.

[b] See the concluding chapter of the Analytica Posteriora.

A similar doctrine is stated by Plato in the Phædon (p. 96, B) as one among the intellectual phases that Sokrates had passed through in the course of his life, without continuing in them.

[a] Aristot. Metaphys. Δ. p. 1017, a. 23: ὁσαχῶς γὰρ λέγεται (τὰ σχήματα τῆς κατηγορίας), τοσαυταχῶς τὸ εἶναι σημαίνει.

[b] This is the just remark of Trendelenburg, Kategorienlehre, p. 217.

exist only along with it as a predicate, being nothing in itself apart; and when he enumerated Quality as one among the predicates, and nothing beyond. In the Platonic Realism (Phædon, Timæus, Parmenides) what Aristotle called Quality was the highest and most incontestable among all Substances—the Good, the Beautiful, the Just, &c.; what Aristotle called Second Substance was also Substance in the Platonic Realism, though not so incontestably; but what Aristotle called First Substance was in the Platonic Realism, no Substance at all, but only one among a multitude of confused and transient shadows. It is in the First and Third Categories that the capital antithesis of Aristotle against the Platonic Realism is contained. As far as that antithesis is concerned, it matters little whether the aggregate of predicates be subdivided under nine general heads (Categories) or under three.

In the century succeeding Aristotle, the Stoic philosophers altered his Categories, and drew up a new list of their own, containing only four distinct heads instead of ten. We have no record or explanation of the Stoic Categories from any of their authors; so that we are compelled to accept the list on secondary authority, from the comments of critics, mostly opponents. But, as far as we can make out, they retained in their First Category the capital feature of Aristotle's First Category—the primacy of the First Substance or Hoc Aliquid and its exclusive privilege of imparting reality to all the other Categories. Indeed, the Stoics seem not only to have retained this characteristic, but to have exaggerated it. They did not recognize so close an approach of the Universal to the Particular, as is implied by giving to it a second place in the same Category, and calling it Second Substance. The First Category of the Stoics (Something or Subject) included only particular substances; all Universals were by them ranked in the other Categories, being regarded as negations of substances, and designated by the term Non-Somethings—Non-Substances.[a]

The Neo-Platonist Plotinus, in the third century after the Christian era, agreed with the Stoics (though looking from the opposite point of view) in disapproving Aristotle's arrangement of Second Substance in the same Category with First Substance.[b] He criticizes at some length both the Aristotelian list of Categories, and the Stoic list: but he falls back into the Platonic and even the Parmenidean point of view. His capital distinction is between Cogitables and Sensibles. The Cogitables are in his view the most real (*i.e.* the Aristotelian Second Substance is more real than the First); among them the highest, Unum or Bonum, is the grand fountain and sovereign of all the rest. Plotinus thus departed altogether from the Aristotelian Categories, and revived the Platonic or Parmenidean Realism; yet not without some Aristotelian modifications. But it is remarkable that in this departure his devoted friend and scholar Porphyry did not follow him. Porphyry not only composed an Introduction to the Categories of Aristotle, but also vindicated them at great length, in a separate commentary, against the censures of Plotinus; Dexippus, Jamblichus, and Simplikius, followed in the same track.[a] Still, though Porphyry stood forward both as admirer and champion of the Aristotelian Categories, he did not consider that the question raised by the First Category of Aristotle against the Platonic Realism was finally decided. This is sufficiently proved by the three problems cited above out of the Introduction of Porphyry; where he proclaims it to be a deep and difficult enquiry, whether Genera and Species had not a real substantive existence apart from the individuals composing them. Aristotle, both in the Categories and in many other places, had declared his opinion distinctly in the negative against Plato; but Porphyry had not made up his mind between the two, though he insists, in language very Aristotelian, on the distinction between First and Second Substance.[b]

Through the translations and manuals of Boëthius and others, the Categories of Aristotle were transmitted to the Latin Churchmen, and continued to be read even through the darkest ages, when the Analytica and the Topica were unknown or neglected. The Aristotelian discrimination between First and Second Substance was thus always kept in sight, and Boëthius treated it much in the same manner as Porphyry had done before him.[c] Alcuin, Rhabanus Maurus, and Eric of Auxerre,[d] in the eighth and

[a] Prantl, Gesch. der Logik, I. vi. p. 420: *οὔτινα τἀκοινὰ παρ' αὐτοῖς λέγεται*, &c.

[b] Plotinus, Ennead. vi.1, 2.

[a] Simplikius, Schol. in Aristotel. Categ. p. 40, a, b, Brandis.

[b] Prantl, Geschichte der Logik, I. xi. p. 634, n. 69. Upon this account Prantl finds Porphyry guilty of "empiricism in its extreme crudeness"—"jene äusserste Rohheit des Empirismus."

[c] Ibid. I. xii. p. 685; Trendelenburg, Kategorienlehre, p. 245.

[d] Ueberweg, Geschichte der Philosophie der scholastischen Zeit, p. 13.

ninth centuries, repeated what they found in Boëthius, and upheld the Aristotelian tradition unimpaired. But Scotus Erigena (*d.* 880 A.D.) took an entirely opposite view, and reverted to the Platonic traditions, though with a large admixture of Aristotelian ideas. He was a Christian Platonist, blending the transcendentalism of Plato and Plotinus with theological dogmatic influences derived from the Pseudo-Dionysius Areopagita and others) and verging somewhat even towards Pantheism. Scotus Erigena revived the doctrine of Cogitable *Universalia extra rem* and *ante rem.* He declared express opposition to the arrangement of the First Aristotelian Category, whereby the individual was put first, in the character of subject; the Universal second, in the character only of predicate; complete reality belonging to the two in conjunction. Scotus maintained that the Cogitable or Incorporeal Universal was the first, the true and complete real; from whence the sensible individuals were secondary, incomplete, multiple, derivatives.[a] But, though he thus adopts and enforces the Platonic theory of Universals *ante rem* and *extra rem*, he does not think himself obliged to deny that Universals may be *in re* also.

[a] Prantl, Gesch. der Logik, II. xiii. pp. 29-35.

The contradiction of the Aristotelian traditions, so far as concerns the First Category, thus proclaimed by Scotus Erigena, appears to have provoked considerable opposition among his immediate successors. Nevertheless he also obtained partizans. Remigius of Auxerre and others not only defended the Platonic Realism, but carried it as far as Plato himself had done; affirming that not merely Universal Substances, but also Universal Accidents, had a real separate existence, apart from and anterior to individuals.[a] The controversy for and against the Platonic Realism was thus distinctly launched in the schools of the Middle Ages. It was upheld both as a philosophical revival, and as theologically orthodox, entitled to supersede the traditional counter-theory of Aristotle.

[a] Prantl, Gesch. der Logik, II. xiii. pp. 44, 45-47.

II.

FIRST PRINCIPLES.

A.—*Sir William Hamilton on Aristotle's Doctrine.*

In reading attentively Hamilton's "Dissertation on the Philosophy of Common Sense" (Note A, annexed to ed. of Reid's Works, p. 742, seq.), I find it difficult to seize accurately what he means by the term. It seems to me that he unsays in one passage what he says in another; and that what he tells us (p. 750, b.), viz. that "philosophers have rarely scrupled, on the one hand, quietly to supersede the data of consciousness, so often as these did not fall in with their pre-adopted opinions; and on the other clamorously to appeal to them as irrecusable truths, so often as they could allege them in corroboration of their own, or in refutation of a hostile, doctrine"—is illustrated by his own practice.

On page 752, a., he compares Common Sense to Common Law, and regards it as consisting in certain elementary feelings and beliefs, which, though in possession of all, can only be elicited and declared by philosophers, who declare it very differently. This comparison, however, sets aside unassisted Common Sense as an available authority. To make it so we must couple with it the same supplement that Common Law requires; that is, we must agree on some one philosopher as authoritative exponent of Common Sense. The Common Law of one country is different from that of another. Even in the same country, it is differently construed and set forth by different witnesses, advocates, and judges. In each country, a supreme tribunal is appointed to decide between these versions and to declare the law. The analogy goes farther than Hamilton wishes.

On the same page, he remarks:—"In saying (to use the words of Aristotle) simply and without qualification, that this or that *is a known truth*, we do not mean that it is in fact recognized by all, but only by such as are of a sound understanding; just as, in saying absolutely that a thing is wholesome, we must be held to mean, to such as are of a hale constitution." The passage of Aristotle's Topica here noticed will be found to have a different bearing from that which Hamilton gives it.

Aristotle is laying down (Topica, VI. iv. p. 141, a. 23-p. 142, a. 16) the various lines of argument which may be followed out, when you are testing in dialectical debate a definition given or admitted by the opponent. There cannot be more than one definition of the same thing: the definition ought to declare the essence of the thing, which can only be done by means of *priora* and *notiora*. But *notiora* admits of two meanings: (1) *notiora simpliciter;* (2) *notiora nobis* or *singulis hominibus.* Under the first head, that which is *prius* is absolutely more knowable than that which is *posterius;* thus, a point more than a line, a line more than a plane, a plane more than a solid. But under the second head this order is often reversed: to most men the solid (as falling more under sense) is more knowable than the plane, the plane than the line, the line than the point. The first (*notiora simpliciter*) is the truly scientific order, suited to superior and accurate minds, employed in teaching, learning, and demonstration (p. 141, a, 29: *καθάπερ ἐν ταῖς ἀποδείξεσιν, οὕτω γὰρ πᾶσα διδασκαλία καὶ μάθησις ἔχει,*—b. 16: *ἐπιστημονικώτερον γὰρ τὸ τοιοῦτόν ἐστιν*). The second (*notiora nobis*) is adapted to ordinary minds, who cannot endure regular teaching, nor understand a definition founded on the first order. But definitions founded on the second alone (Aristotle says) are not satisfactory, nor do they reveal the true essence of the thing defined: there can be no satisfactory definition unless what is *notius simpliciter* coincides with what is *notius nobis* (p. 141, b. 24). He then proceeds to explain what is meant by *notius simpliciter;* and this is the passage quoted by Hamilton. After having said that the *notiora nobis* are not fixed and uniform, but vary with different individuals, and even in the same individual at different times, he goes on: "It is plain therefore that we ought not to define by such characteristics as these (the *notiora nobis*), but by the *notiora simpliciter:* for it is only in this way that we can obtain a definition one and the same at all times. Perhaps, too, the *notius simpliciter* is not that which is knowable to all, but that which is knowable to those who are well trained

in their intelligence; just as the absolutely wholesome is that which is wholesome to those who are well constituted in their bodies" (*ἴσως δὲ καὶ τὸ ἁπλῶς γνώριμον οὐ τὸ πᾶσι γνώριμόν ἐστιν, ἀλλὰ τὸ τοῖς εὖ διακειμένοις τὴν διάνοιαν, καθάπερ καὶ τὸ ἁπλῶς ὑγιεινὸν τὸ τοῖς εὖ ἔχουσι τὸ σῶμα*—p. 142, a. 9).

Hamilton's translation misses the point of Aristotle, who here repeats what he frequently also declares in other parts of his writings (see Analyt. Post. I. i. p. 71, b. 33), namely, the contrast and antithesis between *notius simpliciter* (or *naturâ*) and *notius nobis*. This is a technical distinction of his own, which he had explained very fully in the page preceding the words translated by Hamilton; and the words are intended as a supplementary caution, to guard against a possible misunderstanding of the phrase. Hamilton's words—"saying simply, and without qualification, that this or that is a known truth," do not convey Aristotle's meaning at all; again, the words—"such as are of a sound understanding," fail equally in rendering what Aristotle means by *τοῖς εὖ διακειμένοις τὴν διάνοιαν*. Aristotle tells us distinctly (in the preceding part of the paragraph) that he intends to contrast the few minds scientific or prepared for scientific discipline, with the many minds unscientific or unprepared for such discipline: he does not intend to contrast "men of sound understanding" with men "not of sound understanding."

It appears to me that Hamilton has here taken a passage away from its genuine sense in the Aristotelian context, and has pressed it into his service to illustrate a view of his own, foreign to that of Aristotle. He has done the like with some other passages, to which I will now advert.

What he says, pp. 764-766, about Aristotle's use of the term *ἀξίωμα* is quite opposed to the words of Aristotle himself, who plainly certifies it as being already in his time a technical term with mathematicians (Met. Γ. p. 1005, a. 20). On p. 766, a., Hamilton says that the word *ἀξίωμα* is not used in any work extant prior to Aristotle in a logical sense. This is true as to any *work* remaining to us, but Aristotle himself talks of previous philosophers or reasoners who had so used it; thus he speaks of *κατὰ τὸ Ζήνωνος ἀξίωμα* (Metaph. B. p. 1001, b. 7)—"according to the assumption laid down by Zeno as authoritative." Of this passage Hamilton takes no notice: he only refers to the Topica, intimating a doubt (in my judgment groundless and certainly professed by few modern critics, if any) whether the Topica is a genuine work of Aristotle. In the time of Aristotle, various mathematical teachers laid down Axioms, such as, If equals be taken from equals, the remainders will be equal; In all propositions, either the affirmative or the negative must be true, &c. But the case of Zeno shows us that other philosophers also laid down Axioms of their own, which were not universally accepted by others. What Hamilton here says, about Axioms, has little pertinence as a contribution to the Philosophy of Common Sense.

Again, Hamilton says, p. 770, a.: "The native contributions by the mind itself to our concrete cognitions have, prior to their elicitation into consciousness through experience, only a *potential*, and in actual experience only an *applied*, *engaged*, or *implicate*, existence."

These words narrow the line of distinction between the two opposite schools so much, that I cannot see where it is drawn. Every germ has in it the *potentialities* of that which it will afterwards become. No one disputes that a baby just born has mental *potentialities* not possessed by a puppy, a calf, or an acorn. What is the difference between cognitions *elicited through experience*, and cognitions *derived from experience?* To those who hold the doctrine of Relativity, both our impressions of sense and our mental activities (such as memory, discrimination, comparison, abstraction, &c.) are alike indispensable to experience. The difference, so far as I can see, between Hamilton and the Inductive School, is not so much about the process whereby cognitions are acquired, as about the mode of testing and measuring the authority of those cognitions when acquired. Hamilton will not deny that many of the cognitions which he describes as elicited by experience are untrue or exaggerated. How are we to discriminate these from the true? The Inductive School would reply: "By the test of experience, and by that alone: if these cognitions, which have been elicited in your mind through experience, are refuted or not confirmed when tested by subsequent experience carefully watched and selected for the purpose, they are not true or trustworthy cognitions." But Hamilton would not concur in this answer: he would say that the cognitions, though elicited *through* experience, did not derive their authority or trustworthiness *from* experience, but were binding and authoritative in themselves, whether confirmed by experience or not. In speaking about Axioms, p. 764, b., he says; "Aristotle limited" (this is not correct: Aristotle did not *limit* as here affirmed) "the expression Axiom to these

judgments which, on occasion of experience, arise naturally and necessarily in the conscious mind, and which are therefore virtually prior to experience." That they are not prior to experience in *order of time*, is admitted in the words just cited from Hamilton himself: he means, therefore, prior in *logical authority*—carrying with them the quality of *necessity*, even though experience may afford no confirmation of them. This is what he says, on pp. 753-754, about causality: metaphysical causality *must* be believed, as a necessary and subjective law of the observer—though there is no warrant for it in experience.

The question between Hamilton and the Inductive School, I repeat, is not so much about the psychological genesis of beliefs, as about the test for distinguishing true from false or uncertified beliefs, among those beliefs which arise, often and usually, in the minds of most men. Is there any valid test other than experience itself, as intentionally varied by experiments and interpreted by careful Induction? Are we ever warranted in affirming what transcends experience, except to the extent to which the inference from Induction (from some to all) always transcends actual observation? This seems to me the real question at issue between the contending schools of Metaphysics. Hamilton, while he rejects experience as the test, furnishes no other test whereby we can discriminate the erroneous beliefs "which are elicited into consciousness through experience," from the true beliefs which are elicited in like manner.

In discussing the doctrine which Hamilton and other philosophers entitle Common Sense (in the metaphysical import which they assign to it), it is proper to say a few words on the legitimate meaning of this phrase, before it was pressed into service by a particular school of metaphysicians. Every one who lives through childhood and boyhood up to man's estate will unavoidably acquire a certain amount of knowledge and certain habits of believing, feeling, judging, &c.; differing materially in different ages and countries, and varying to a less degree in different individuals of the same age and country, yet still including more or less which is common to the large majority. That fire burns; that water quenches thirst and drowns; that the sun gives light and heat; that animals are all mortal and cannot live long without nourishment,—these and many other beliefs are not possessed by a very young child, but are acquired by every man as he grows up, though he cannot remember how or when he learnt them. The sum total of the beliefs thus acquired, by the impressions and influences under which every growing mind must pass, constitutes the Common Sense of a particular age and country. A person wanting in any of them would be considered, by the majority of the inhabitants, as deficient in Common Sense. If I meet an adult stranger, I presume as a matter of course that he has acquired them, and I talk to him accordingly. I also presume (being in England) that he has learnt the language of the country; and that he is familiar with the forms of English speech whereby such beliefs and their correlative disbeliefs are enunciated. If I affirm to him any one of these beliefs, he assents to it at once: it appears to him self-evident—that is, requiring no farther or extraneous evidence to support it. Though it appears to him self-evident, however, the proposition may possibly be false. To a Greek of the Aristotelian age, no proposition could appear more self-evident than that of the earth being at rest. No term can be more thoroughly relative than the term *self-evident*: that which appears so to one man, will often not appear so to another, and may sometimes appear altogether untrue.

But, if we suppose an individual to whom one of these beliefs does not appear self-evident, and who requires proof, he will not be satisfied to be told that every one else believes it, and that it is a dictate of Common Sense. He probably knows that already, and yet, nevertheless, he is not convinced. Aristarchus of Samos was told doubtless, often enough, that the doctrine of the earth being at rest was the plain verdict of Common Sense; but he did not the less controvert it. You must produce the independent proof which the recusant demands; and, if your doctrine is true and trustworthy, such proof can be produced. I will here remark that, in so far as Common Sense can properly be quoted as an authority or presumptive authority, it is such only in the sense proclaimed by Herakleitus and La Mennais, as cited by Hamilton, pp. 770-771: "as a magazine of ready-fabricated dogmas." Hamilton finds fault with both of them; but it appears to me that they rightly interpret, and that he wrongly interprets, what Common Sense, as generally understood, is; and moreover, that most of the other authorities whom he himself quotes understand the phrase as these two understand it. Common Sense *is* "a magazine of ready-fabricated dogmas," as La Mennais (see p. 771, a.) considers it—dogmas assumed as self-evident, and as requiring no proof. It only becomes "a source of

elementary truths" when analysed and remodelled by philosophers. Now philosophers differ much in their mode of analysing it (as Hamilton himself declares emphatically), and bring out of it different elementary truths; each of them professing to follow Common Sense and quoting Common Sense as warranty. It is plain that Common Sense is no authority for either one of two discrepant modes of analysis. Its authority counts for those dogmas out of which the analysis is made, in so far as Common Sense is authoritative at all.

Hamilton cites or indicates thirteen different Aristotelian passages, in order to support his view that Aristotle is to be numbered among the champions of authoritative Common Sense. It will be seen that most of the passages prove nothing, and that only one proves much, in favour of that view. I shall touch upon them *seriatim*.

(*a*) "First truths are such as are believed, not through aught else" (say rather *through other truths*) "but through themselves alone. For, in regard to the first principles of science, we ought not to require the reason *Why;* for each such principle behoves to be itself a *belief* in and of itself."[a] After the words *reason Why*, Hamilton inserts the following additional words of his own in brackets—"but only the fact *That* they are given."

I demur to the words in brackets, as implying an hypothesis not contained in Aristotle; who says only that the truth affirmed by the teacher must be such as the learner is prepared to believe without asking any questions. It may be an analytical truth (*sensu Kantiano*), in which the predicate asserts only what the learner knows to be already contained in the definition of the subject. It may be a synthetical truth; yet asserting only what he is familiar with by constant, early, uncontradicted, obvious, experience. In either case, he is prepared to believe it *at once;* and thus the conditions of a First Scientific Truth are satisfied, as here described by Aristotle; who says nothing about the truth *being given*.

The next passage cited (*b*) is from the Analytica Posteriora (the reference is printed by mistake *Priora*). According to Hamilton, Aristotle says:—"We assert not only that science does exist, but also that there is given a certain beginning or principle of science, *in so far as* (or, on another interpretation of the term ᾗ—*by which*) we recognize the import of the terms."[a] I think Hamilton has not exactly rendered the sense of the original when he translates it—"we recognise the import of the terms;" and he proceeds to add expository words of his own which carry us still farther away from what I understand in Aristotle. If Hamilton's rendering is correct, all the *principia* of Science would be analytical propositions (*sensu Kantiano*), which I do not think that Aristotle intended to affirm or imply. In the last chapter of the Analytica Posteriora, Aristotle not only affirmed that there were First Principles of Science, but described at length the inductive process by which we reached them; referring them ultimately to the cognizance and approval of Νοῦς or Intellect. What Aristotle means is, that, in ascending from propositions of lower to propositions of higher universality, we know when we have reached the extreme term of ascent; and this forms the *principium*.

Sir W. Hamilton next gives us another passage (*c*) from the Analytica Posteriora, in which Aristotle affirms that the First Principles must be believed in a superlative degree, because we know and believe all secondary truths through them:[b] a doctrine which appears to me to require both comment and limitation; but about which I say nothing, because, even granting it to be true, I do not see how it assists the purpose—to prove that Aristotle is the champion of authoritative Common Sense. Nor do I find any greater proof in another passage previously (p. 764, b.) produced from Aristotle: "Of the immediate principles of Syllogism, that which cannot be demonstrated, but which it is not necessary to possess as the pre-requisite of all learning, I call *Thesis:* and that *Axiom*, which he who would learn aught, must himself bring (and not receive from his instructor). For some such principles there are; and it is to these that we are accustomed to apply the name."[c] Such principles there doubtless are, which the

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[a] Aristot. Topic. I. i. p. 100, a. 30; Hamilton's Reid, p. 772, a.

[a] Aristot. Anal. Post. I. iii. p. 72, b. 23: ταὐτά τ' οὖν οὕτω λέγομεν, καὶ οὐ μόνον ἐπιστήμην ἀλλὰ καὶ ἀρχὴν ἐπιστήμης εἶναί τινά φαμεν, ᾗ τοὺς ὅρους γνωρίζομεν.

Neither Philoponus, nor Buhle, nor M. Barthélemy St.-Hilaire, translate the words τοὺς ὅρους γνωρίζομεν in the same way as Sir W. Hamilton. It rather seems to me that the words mean *terms or limits of regress*, which coincides with the paraphrase of Philoponus: τούτῳ γὰρ (τῷ νῷ) τὰς ἀρχοειδεστάτας καὶ οἱονεὶ ὅρους οὔσας γνωρίζομεν (Schol. p. 201, b. 13, Br.), as well as substantially with the note of M. St.-Hilaire.

[b] Analyt. Poster. I. ii. p. 72, a. 27.

[c] Analyt. Poster. I. iii. p. 72, a. 17: τοῦτο γὰρ μάλιστ' ἐπὶ τοῖς τοιούτοις εἰώθαμεν ὄνομα λέγειν —"we are for the most part accustomed:" Hamilton has not translated the word μάλιστα, which it would have been better for him to do, because he

learner must bring with him; but Aristotle does not assert, much less prove, that they are intuitions given by authoritative Common Sense. Nay, in the passage cited in my former page, he both asserted and proved that the *principia* of Science were raised from Sense by Induction. The learner, when he comes to be taught, must bring some of these *principia* with him, if he is to learn Science from his teacher; just as he must also bring with him a knowledge of the language, of the structure of sentences, of the forms for affirmation and denial, &c., and various other requisites. A recruit, when first coming to be drilled, must bring with him a certain power of walking and of making other movements of the limbs. But these pre-requisites, on the part of the learner as well as on that of the recruit, are not intuitive products or inspirations of the mind: they are acquirements made by long and irksome experience, though often forgotten in its details. We are not to reason upon the learner or the recruit as if they were children just born.

The passages out of the Rhetorica and the Metaphysica (cited on p. 772, b., and marked *d* and *e*) are hardly worth notice. But that which immediately follows (marked *f*), out of the Nikomachean Ethica, is the most pertinent of all that are produced. Hamilton writes:—"Arguing against a paradox of certain Platonists in regard to the Pleasurable, Aristotle says—'But they who oppose themselves to Eudoxus, as if what all nature desiderates were not a good, talk idly. For what *appears to all*, that we affirm *to be;* and he who would subvert this belief, will himself assuredly advance nothing more deserving of credit.'[a] Compare also L. vii. c. 13 (14). In his paraphrase of the above passage, the Pseudo-Andronicus in one place uses the expression *common opinion*, and in another all but uses (what indeed he could hardly do in this meaning as an Aristotelian, if indeed in Greek at all) the expression *common sense*, which D. Heinsius in his Latin version actually employs." Thus far Hamilton; but the words of Aristotle which immediately follow are even stronger:—"For, in so far as foolish creatures desire pleasure, the objection taken would be worth something; but, when intelligent creatures desire it also, how can the objectors make out their case? Even in mean and foolish creatures, moreover, there is perhaps a certain good natural appetite, superior to themselves, which aims at their own good."[a] Or as Aristotle (according to some critics, the Aristotelian Eudemus) states it in the Seventh Book of the Nikomachean Ethica, referred to by Sir W. Hamilton without citing it: — "Perhaps all creatures (brutes as well as men) pursue, not that pleasure which they think they are pursuing, nor what they would declare themselves to be pursuing, but all of them the same pleasure; for all creatures have by nature something divine."[b]

In this passage, Aristotle does really appear as the champion of authoritative Common Sense. He enunciates the general principle: That which appears to all, that we affirm to be. And he proceeds to claim (with the qualification of *perhaps*) for this universal belief a divine or quasi-divine authority; like Hesiod in the verses cited by Sir W. Hamilton, p. 770, b., and like Dr. Reid in the motto prefixed to his 'Inquiry into the Human Mind on the Principles of Common Sense.' If Aristotle had often spoken in this way, he would have been pre-eminently suitable to figure in Sir W. Hamilton's list of authorities. But the reverse is the fact. In the Analytica and Topica, Aristotle is so far from accepting the opinion and belief of all as a certificate of truth and reality, that he expressly ranks the matters so certified as belonging to the merely probable, and includes them in his definition thereof. Universal belief counts for more or less, as a certificate of the truth of what is believed, according to the matter to which it refers; and there are few matters on which it is of greater value than pleasure and pain. Yet even upon this point Aristotle rejects the authority of the many, and calls upon us to repose implicit confidence in the verdict of the just and intelligent individual, whom he enthrones as the measure. "Those alone are pleasures" (says Aristotle) "which appear pleasures to this man; those alone

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founds upon the passage an argument to prove that Aristotle limited in a certain way the sense of the word Axiom.

[a] Aristot. Ethic. Nik. X. ii. p. 1172, b. 36: ὃ γὰρ πᾶσι δοκεῖ, τοῦτ' εἶναί φαμεν· ὁ δ' ἀναιρῶν ταύτην τὴν πίστιν, οὐ πάνυ πιστότερα ἐρεῖ.

[a] Aristot. Ethic. Nik. X. ii. p. 1173, a. 2: ἠ μὲν γὰρ τὰ ἀνόητα ὀρέγεται αὐτῶν, ἦν ἄν τι τὸ λεγόμενον· εἰ δὲ καὶ τὰ φρόνιμα, πῶς ἂν λέγοιέν τι; ἴσως δὲ καὶ ἐν τοῖς φαύλοις ἐστί τι φυσικὸν ἀγαθὸν κρεῖττον ἢ καθ' αὐτά, ὃ ἐφίεται τοῦ οἰκείου ἀγαθοῦ. (I adopt here the text as given by Michelet, ῃ μὲν in place of εἰ μὲν, but not in leaving out τὸ before λεγόμενον.) I think the sentence would stand better if ἀγαθὸν were omitted after φυσικόν.

[b] Eth. Nikom. VII. xiv. p. 1153, b. 31: ἴσως δὲ καὶ διώκουσιν οὐχ ἣν οἴονται (ἡδονὴν) οὐδ' ἣν ἂν φαῖεν, ἀλλὰ τὴν αὐτήν· πάντα γὰρ φύσει ἔχει τι θεῖον. The sentiment is here declared even more strongly respecting the appetency of all animals—brutes as well as men.

are pleasant things in which he takes delight. If things which are revolting to him appear pleasurable to others, we ought not to wonder, since there are many corruptions and degenerations of mankind; yet these things are not really pleasurable, except to these men and to men of like disposition."[a] This declaration, repeated more than once in the Nikomachean Ethica, and supported by Analytica and Topica, more than countervails the opposite opinion expressed by Aristotle, in the passage where he defends Eudoxus.

The next passage (*g*) produced by Sir W. Hamilton is out of the Eudemian Ethica. But this passage, when translated more fully and exactly than we read it in his words, will be found to prove nothing to the point which he aims at. He gives it as follows, p. 773, a.:—"But of all these we must endeavour to seek out rational grounds of belief, by adducing manifest testimonies and authorities. For it is the strongest evidence of a doctrine, if all men can be adduced as the manifest confessors of its positions; because every individual has in him a kind of private organ of the truth. Hence we ought not always to look to the conclusions of reasoning, but frequently rather to what appears [and is believed] to be." The original is given below.[b]

The following is a literal translation, restoring what Sir W. Hamilton omits:—"But, respecting all these matters, we must endeavour to seek belief through general reasoning, employing the appearances before us (*i.e.* the current *dicta* and *facta* of society) as testimonies and examples. For it is best that all mankind should be manifestly in agreement with what we are about to say; but, if that cannot be, that at all events they should be in some sort of agreement with us: which they will come to be when brought round (by being addressed in the proper style). For every man has in him some tendencies favourable to the truth, and it is out of these that we must somehow or other prove our conclusions. By taking our departure from what is said around us truly but not clearly, we shall by gradual advance introduce clearness, taking along with us such portion of the confused common talk as is most congruous to Science. . . . It is well also to consider apart the causal reasoning (syllogistic, deductive premisses), and the conclusion shown: first, upon the ground just stated, that we must not pay exclusive attention to the results of deductive reasoning, but often rather to apparent facts, whereas it often happens now that, when men cannot refute the reasoning, they feel constrained to believe in the conclusion; next, because the conclusion, shown by the reasoning, may often be true in itself, but not from the cause assigned in the reasoning. For a true conclusion may be shown by false premisses; as we have seen in the Analytica."

Whoever reads the original words of Aristotle (or Eudemus) will see how much Sir W. Hamilton's translation strains their true meaning. *Κράτιστον* does not correspond to the phrase—"it is the strongest evidence of a doctrine." *Κράτιστον* is the equivalent of *ἄριστον*, as we find in chap. iii. of this Book of the Eudemian Ethica (p. 1215, a. 3): *ἐπεὶ δ' εἰσὶν ἀπορίαι περὶ ἑκάστην πραγματείαν οἰκεῖαι, δῆλον ὅτι καὶ περὶ βίου τοῦ κρατίστου καὶ ζωῆς τῆς ἀρίστης εἰσίν.* Nor ought the words *οἰκεῖόν τι πρὸς τὴν ἀλήθειαν* to be translated—"a kind of private organ of the truth:" they mean simply—"something in him favourable or tending towards the truth," as we read in chap. ii. of this same Book—*οἰκεῖον πρὸς εὐεξίαν* (p. 1214, b. 22). Moreover, Hamilton has omitted to translate both the words preceding and the words following; accordingly he has missed the real sense of the passage. Aristotle inculcates upon the philosopher never to neglect the common and prevalent opinions, but to acquaint himself with them carefully; because, though these opinions are generally full of confusion and error (*εἰκῇ γὰρ λέγουσι σχεδὸν περὶ ἁπάντων* (*οἱ πολλοί*)—Ethic. Eudem. I. iii. p. 1215, a. 1), he will find in them partial correspondences with the truth,

[a] Aristot. Ethic. Nik. X. v. p. 1176, a. 15: *δοκεῖ δ' ἐν ἅπασι τοιούτοις εἶναι τὸ φαινόμενον τῷ σπουδαίῳ. εἰ δὲ τοῦτο καλῶς λέγεται, καθάπερ δοκεῖ, καὶ ἔστιν ἑκάστου μέτρον ἡ ἀρετὴ καὶ ὁ ἀγαθὸς ᾗ τοιοῦτος, καὶ ἡδοναὶ εἶεν ἂν αἱ τούτῳ φαινόμεναι, καὶ ἡδέα οἷς οὗτος χαίρει* &c. Ib. vi. p. 1176, b. 24: *καθάπερ οὖν πολλάκις εἴρηται, καὶ τίμια καὶ ἡδέα ἐστὶ τὰ τῷ σπουδαίῳ τοιαῦτα ὄντα.*

[b] Aristot. Eth. Eud. I. vi. p. 1218, b. 26: *πειρατέον δὲ περὶ τούτων πάντων ζητεῖν τὴν πίστιν διὰ τῶν λόγων, μαρτυρίοις καὶ παραδείγμασι χρώμενον τοῖς φαινομένοις. κράτιστον μὲν γὰρ πάντας ἀνθρώπους φαίνεσθαι συνομολογοῦντας τοῖς ῥηθησομένοις, εἰ δὲ μή, τρόπον γέ τινα πάντας, ὅπερ μεταβιβαζόμενοι ποιήσουσιν· ἔχει γὰρ ἕκαστος οἰκεῖόν τι πρὸς τὴν ἀλήθειαν, ἐξ ὧν ἀναγκαῖον δεικνύναι πως περὶ αὐτῶν. ἐκ γὰρ τῶν ἀληθῶς μὲν λεγομένων, οὐ σαφῶς δέ, προιοῦσιν ἔσται καὶ τὸ σαφῶς, μεταλαμβάνουσιν ἀεὶ τὰ γνωριμώτερα τῶν εἰωθότων λέγεσθαι συγκεχυμένως.* Then after an interval of fifteen lines: *καλῶς δ' ἔχει καὶ τὸ χωρὶς κρίνειν τὸν τῆς αἰτίας λόγον καὶ τὸ δεικνύμενον, διά τε τὸ ῥηθὲν ἀρτίως, ὅτι προσέχειν οὐ δεῖ πάντα τοῖς διὰ τῶν λόγων, ἀλλὰ πολλάκις μᾶλλον τοῖς φαινομένοις (νῦν δ' ὁπότ' ἂν λύειν μὴ ἔχωσιν, ἀναγκάζονται πιστεύειν τοῖς εἰρημένοις), καὶ διότι πολλάκις τὸ μὲν ὑπὸ τοῦ λόγου δεδεῖχθαι δοκοῦν ἀληθὲς μέν ἐστιν, οὐ μέντοι διὰ ταύτην τὴν αἰτίαν δι' ἥν φησιν ὁ λόγος. ἔστι γὰρ διὰ ψεύδους ἀληθὲς δεῖξαι· δῆλον δ' ἐκ τῶν Ἀναλυτικῶν.*

of which he may avail himself to bring the common minds round to better views; but, unless he knows pretty well what the opinions of these common minds are, he will not be able to address them persuasively. This is the same reasonable view which Aristotle expresses at the beginning of the Topica (in a passage already cited above), respecting the manner of dealing proper for a philosopher towards current opinion. But it does not at all coincide with the representation given by Hamilton.

The next piece of evidence (*h*) which we find tendered is another passage out of the Eudemian Ethica. It will be seen that this passage is strained with even greater violence than the preceding. Hamilton writes as follows, first translating the words of Aristotle, then commenting on them:—"The problem is this—What is the beginning or principle of motion in the soul? Now it is evident, as God is in the universe, and the universe in God, that [I read *κινεῖν καί*—W. H.] the divinity in us is also, in a certain sort, the universal mover of the mind. For the principle of Reason is not Reason but something better. Now what can we say is better than even Science, except God?"[a] So far Hamilton's translation; now follows his comment:—"The import of this singular passage is very obscure. It has excited, I see, the attention, and exercised the ingenuity, of Pomponatius, J. C. Scaliger, De Raei, Leibnitz, Leidenfrost, Jacobi, &c. But without viewing it as of pantheistic tendency, as Leibnitz is inclined to do, it may be interpreted as a declaration, that Intellect, which Aristotle elsewhere allows to be pre-existent and immortal, is a spark of the Divinity; whilst its data (from which as principles more certain than their deductions, Reason, Demonstration, Science, must depart) are to be reverenced as the revelation of truths which would otherwise lie hid from man: That, in short,

"'The voice of Nature is the voice of God.'

By the bye, it is remarkable that this text was not employed by any of those Aristotelian philosophers who endeavoured to identify the Active Intellect with the Deity."

I maintain that this passage noway justifies the interpretation whereby Sir W. Hamilton ascribes to Aristotle a doctrine so large and important. The acknowledged obscurity of the passage might have rendered any interpreter cautious of building much upon it; but this is not all: Sir W. Hamilton has translated it separately, without any allusion to the chapter of which it forms part. This is a sure way of misunderstanding it; for it cannot be fairly construed except as bearing on the problem enunciated and discussed in that chapter. Aristotle (or Eudemus) propounds for discussion explicitly in this chapter a question which had been adverted to briefly in the earlier part of the Eudemian Ethica (I. i. p. 1214, a. 24)—What is the relation between good fortune and happiness? Upon what does good fortune depend? Is it produced by special grace or inspiration from the Gods? This question is taken up and debated at length in the chapter from which Sir W. Hamilton has made his extract. It is averred, as a matter of notoriety, that some men are fortunate. Though fools, they are constantly successful—more so than wiser men; and this characteristic is so steady, that men count upon it and denominate them accordingly. (See this general belief illustrated in the debate at Athens recorded by Thukydides, vi. 17, the good fortune of Nikias being admitted even by his opponents.) Upon what does this good fortune depend? Upon nature? Upon intelligence? Upon fortune herself as a special agent? Upon the grace and favour of the gods to the fortunate individual? Aristotle (or Eudemus) discusses the problem in a long and perplexed chapter, stating each hypothesis, together with the difficulties and objections attaching to it. As far as we can make out from an obscure style and a corrupt text, the following is the result arrived at. There are two varieties of the fortunate man: one is, he who succeeds through a rightly directed impulse, under special inspiration of the divine element within him and within all men; the other is, he who succeeds without any such impulse, through the agency of Fortune proper. The good fortune of the first is more constant than that of the second; but both are alike irrational or extra-rational.[a] Now the divine element

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[a] Ethic. Eud. VII. xiv. p. 1248, a. 24: *τὸ δὲ ζητούμενον τοῦτ' ἐστί, τίς ἡ τῆς κινήσεως ἀρχὴ ἐν τῇ ψυχῇ; δῆλον δή, ὥσπερ ἐν τῷ ὅλῳ θεός, καὶ πᾶν* (Fritzsche reads *ἐν*) *ἐκείνῳ. κινεῖ γάρ πως πάντα τὸ ἐν ἡμῖν θεῖον. λόγου δ' ἀρχὴ οὐ λόγος ἀλλά τι κρεῖττον. τί οὖν ἂν κρεῖττον καὶ ἐπιστήμης εἴποι πλὴν θεός;* Instead of *εἴποι* (the last word but two) Fritzsche reads *εἴη καὶ νοῦ*.

This is the passage translated by Sir W. Hamilton. The words of the original immediately following are these: *ἡ γὰρ ἀρετὴ τοῦ νοῦ ὄργανον· καὶ διὰ τοῦτο οἱ πάλαι ἔλεγον—"εὐτυχεῖς καλοῦνται, οἳ ἂν ὁρμήσωσι κατορθοῦσιν ἄλογοι ὄντες, καὶ βουλεύεσθαι οὐ συμφέρει αὐτοῖς"—ἔχουσι γαρ ἀρχὴν τοιαύτην ἣ κρείττων τοῦ νοῦ καὶ βουλεύσεως. οἱ δὲ τὸν λόγον· τοῦτο δ' οὐκ ἔχουσι. και ἐνθουσιασμοί· τοῦτο δ' οὐ δύνανται· ἄλογοι γὰρ ὄντες ἐπιτυγχάνουσι* (so Fritzsche reads in place of *ἀποτυγχάνουσι*).

[a] Eth. Eudem. VII. xiv. p. 1248, b. 3: *φανερὸν*

in the soul is the beginning or principle of motion for all the manifestations in the soul—for reason as well as feeling: that which calls reason into operation, is something more powerful than reason. But in the intelligent man this divine mover only calls reason into operation, leaving reason, when once in operation, to its own force and guidance, of course liable to err; whereas in the fortunate man (first variety) the divine element inspires all his feelings and volitions, without any rational deliberation, so that he executes exactly the right thing at the right time and place, and accordingly succeeds.[a]

Aristotle (or Eudemus) thus obtains a psychological explanation (good or bad) of the fact, that there are fools who constantly succeed in their purposes, and wise men who frequently fail. He tells us that there is in the soul a divine principle of motion, which calls every thing—reason as well as appetite or feeling—into operation. But he says nothing of what Sir W. Hamilton ascribes to him—about Intellect as a spark of the Divinity, or about data of Intellect to be reverenced as the revelation of hidden truths. His drift is quite different and even opposite: to account for the success of individuals *without intellect* or reason—to bring forward a divine element in the soul, which dispenses with intellect, and which conducts these unintelligent men to success, solely by infusing the most opportune feelings and impulses. Sir W. Hamilton has misunderstood this passage, by taking no notice of the context and general argument to which it belongs.

Besides, when Hamilton represents Aristotle here as declaring: "That the data of Intellect are to be reverenced as the revelation of truths which would otherwise lie hid from man"—how are we to reconcile this with what we read two pages before (p. 771, a.) as the view of Aristotle about these same data of Intellect, that "they are themselves pre-eminently certain; and, if denied in words, they are still always mentally admitted"? Is it reasonable to say that the Maxim of Contradiction, and the proposition, That if equals be subtracted from equals, the remainders will be equal—are data "to be reverenced as the revelation of truths which would otherwise lie hid from man"? At any rate, I protest against the supposition that Aristotle has ever declared this.

The next two passages cited from Aristotle have really no bearing upon the authority of Common Sense in its metaphysical meaning: they are (*i*) from Physic. VIII. iii. and (*k*) from De Gen. Animal. III. x. Both passages assert the authority of sensible perception against general reasoning, where the two are conflicting. They assert, in other words, that general reasoning ought to be tested by experience and observation, and is not to be accepted when disallowed by these tests. (The only condition is, that the observation be exact and complete.) This is just, and is often said, though often disregarded in fact, by Aristotle. But it has no proper connexion with the problem about the trustworthiness of Common Sense.

Next Sir W. Hamilton refers us to (without citing) three other places of Aristotle. Of these, the first (De Cœlo, I. iii. p. 270, b. 4–13, marked *l*) is one which I am much surprised to find in a modern champion of Common Sense: since it represents Common Sense as giving full certificate to errors now exploded and forgotten. Aristotle had begun by laying down and vindicating his doctrine of the First or Celestial Body, forming the exterior portion of the Kosmos, radically distinct from the four elements; revolving eternally in uniform, perfect, circular motion, eternal, unchangeable, &c. Having stated this, he proceeds to affirm that the results of these reasonings coincide with the common opinions of mankind, that is, with Common Sense; and that they are not contradicted by any known observations of perceptive experience. This illustrates what I have before observed about Aristotle's position in regard to Common Sense. He does not extol it as an authority, or tell us that "it is to be reverenced as a revelation"; but, when he has proved a conclusion on what he thinks good grounds, he is glad to be able to show that it tallies with common opinions; especially when these opinions have some alliance with the received religion.

The next passage (*m*) referred to (De Cœlo, III. vii. p. 306, a. 13) has nothing to do with Common Sense, but embodies a very just protest by Aristotle against those philosophers who followed out their theories consistently to all possible consequences, without troubling themselves to enquire whether those conse-

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δὲ ὅτι δύο εἴδη εὐτυχίας, ἡ μὲν θεία, διὸ καὶ δοκεῖ ὁ εὐτυχὴς διὰ θεὸν κατορθοῦν· οὗτος δ' ἐστὶν ὁ κατὰ τὴν ὁρμὴν διορθωτικός, ὁ δ' ἕτερος ὁ παρὰ τὴν ὁρμήν· ἄλογοι δ' ἀμφότεροι. καὶ ἡ μὲν συνεχὴς εὐτυχία μᾶλλον, αὕτη δ' οὐ συνεχής.

The variety ὁ παρὰ τὴν ὁρμὴν διορθωτικός is exemplified in the Physica (II. iv. p. 196, a. 4), where Aristotle again discusses τύχη: the case of a man who comes to the market-place on his ordinary business, and there by accident meets a friend whom he particularly wished to see, but whom he never dreamt of seeing there and then.

[a] Eth. Eud. VII. xiv. p. 1248, a, 27-32: εὐτυχεῖς καλοῦνται, &c. Compare also ib. p. 1247, b. 18.

quences were in harmony with the results of observation.

There follows one other reference (*n*) which was hardly worth Sir W. Hamilton's notice. In Meteorologic. I. xiii. p. 349, a. 25, Aristotle, after reciting a theory of some philosophers (respecting the winds) which he considers very absurd, then proceeds to say:—"The many, without going into any enquiry at all, talk better sense than those who after enquiry bring forward such conclusions as these." It is not saying much for the authority of Common Sense, to affirm that there have been occasionally philosophical theories so silly as to be worse than Common Sense.

B.—*Aristotle's Doctrine.*

In regard to Aristotle, there are two points to be examined—

I. What position does he take up in respect to the authority of Common Sense?

II. What doctrine does he lay down about the first *principia* or beginnings of scientific reasoning —the ἀρχαὶ συλλογιστικαί?

I.—That Aristotle did not regard Cause, Substance, Time, &c., as Intuitions, is shown by the subtle and elaborate reasonings that he employs to explain them, and by the censure that he bestows on the erroneous explanations and shortcomings of others. Indeed, in regard to Causality, when we read the great and perplexing diversity of meaning which Aristotle (and Plato before him in the Phædon) recognizes as belonging to this term, we cannot but be surprised to find modern philosophers treating it as enunciating a simple and intuitive idea. But as to Common Sense—taking the term as above explained, and as it is usually understood by those that have no particular theory to support—Aristotle takes up a position at once distinct and instructive; a position (to use the phraseology of Kant) not dogmatical, but critical. He constantly notices and reports the affirmations of Common Sense; he speaks of it with respect, and assigns to it a qualified value, partly as helping us to survey the subject on all sides, partly as a happy confirmation, where it coincides with what has been proved otherwise; but he does not appeal to it as an authority in itself trustworthy or imperative.

Common Sense belongs to the region of Opinion. Now the distinction between matters of Opinion on the one hand, and matters of Science or Cognition on the other, is a marked and characteristic feature of Aristotle's philosophy. He sets, in pointed antithesis, Demonstration, or the method of Science —which divides itself into special subjects, each having some special *principia* of its own, then proceeds by legitimate steps of deductive reasoning from such *principia*, and arrives at conclusions sometimes universally true, always true for the most part—against Rhetoric and Dialectic, which deal with and discuss opinions upon all subjects, comparing opposite arguments, and landing in results more or less probable. Contrasting them as separate lines of intellectual procedure, Aristotle lays down a theory of both. He recognizes the procedure of Rhetoric and Dialectic as being to a great degree the common and spontaneous growth of society; while Demonstration is from the beginning special, not merely as to subject, but as to persons, implying teacher and learner.

Rhetoric and Dialectic are treated by Aristotle as analogous processes. Of the matter of opinion and belief, with which both of them deal, he distinguishes three varieties: (1) Opinions or beliefs entertained by all; (2) By the majority; (3) By a minority of superior men, or by one man in respect to a science wherein he has acquired renown. It is these opinions or beliefs that the rhetorician and the dialectician attack and defend; bringing out all the arguments available for or against each.

The Aristotelian treatise on Rhetoric opens with the following words:—"Rhetoric is the counterpart of Dialectic; for both of them deal with such matters as do not fall within any special science, but belong in a certain way to the common knowledge of all. Hence every individual has his share of both, greater or less; for every one can, up to a certain point, both examine others and stand examination from others; every one tries to defend himself and to accuse others."[a] To the same purpose Aristotle speaks about Dialectic, in the beginning of the Topica:—"The dialectical syllogism takes its premisses from matters of opinion, that is, from matters that seem good to (or are believed by) all, or the majority, or the wise—either all the wise, or most of them, or the most celebrated." Aristotle distinguishes these matters of common opinion or belief from three distinct other matters:—(1) From

[a] Aristot. Rhetor. I. i. p. 1354, a. 1. Compare Sophist. Elench. xi. p. 172, a. 30.

matters that are not really such, but only in appearance; in which the smallest attention suffices to detect the false pretence of probability, while no one except a contentious Sophist ever thinks of advancing them; on the contrary, the real matters of common belief are never thus palpably false, but have always something deeper than a superficial show; (2) From the first truths or *principia*, upon which scientific demonstration proceeds; (3) From the paralogisms, or fallacious assumptions (ψευδογραφήματα), liable to occur in each particular science.

Now what Aristotle here designates and defines as "matters of common opinion and belief" (τὰ ἔνδοξα) includes all that is usually meant, and properly meant, by Common Sense—what is believed by all men or by most men. But Aristotle does not claim any warrant or authority for the truth of these beliefs, on the ground of their being deliverances of Common Sense, and accepted (by all or by the majority) always as indisputable, often as self-evident. On the contrary, he ranks them as mere probabilities, some in a greater, some in a less degree; as matters whereon something may be said both *pro* and *con*, and whereon the full force of argument on both sides ought to be brought out, notwithstanding the supposed self-evidence in the minds of unscientific believers. Though, however, he encourages this dialectical discussion on both sides as useful and instructive, he never affirms that it can by itself lead to certain scientific conclusions, or to anything more than strong probability on a balance of the countervailing considerations. The language that he uses in speaking of these deliverances of Common Sense is measured and just. After distinguishing the real Common Opinion from the fallacious simulations of Common Opinion set up (according to him) by some pretenders, he declares that in all cases of Common Opinion there is always something more than a mere superficial appearance of truth. In other words, wherever any opinion is really held by a large public, it always deserves the scrutiny of the philosopher to ascertain how far it is erroneous, and, if it be erroneous, by what appearances of reason it has been enabled so far to prevail.

Again, at the beginning of the Topica (in which he gives both a theory and precepts of dialectical debate), Aristotle specifies four different ends to be served by that treatise. It will be useful (he says)—

1. For our own practice in the work of debate. If we acquire a method and system, we shall find it easier to conduct a debate on any new subject, whenever such debate may arise.

2. For our daily intercourse with the ordinary public. When we have made for ourselves a full collection of the opinions held by the many, we shall carry on our conversation with them out of their own doctrines, and not out of doctrines foreign to their minds; we shall thus be able to bring them round on any matter where we think them in error.

3. For the sciences belonging to philosophy. By discussing the difficulties on both sides, we shall more easily discriminate truth and falsehood in each separate scientific question.

4. For the first and highest among the *principia* of each particular science. These, since they are the first and highest of all, cannot be discussed out of *principia* special and peculiar to any separate science; but must be discussed through the opinions commonly received on the subject-matter of each. This is the main province of Dialectic; which, being essentially testing and critical, is connected by some threads with the *principia* of all the various scientific researches.

We see thus that Aristotle's language about Common Opinion or Common Sense is very guarded; that, instead of citing it as an authority, he carefully discriminates it from Science, and places it decidedly on a level lower than Science, in respect of evidence; yet that he recognizes it as essential to be studied by the scientific man, with full confrontation of all the reasonings both for and against every opinion; not merely because such study will enable the scientific man to study and converse intelligibly and efficaciously with the vulgar, but also because it will sharpen his discernment for the truths of his own science, and because it furnishes the only materials for testing and limiting the first *principia* of that science.

II. We will next advert to the judgment of Aristotle respecting these *principia* of science: how he supposes them to be acquired and verified. He discriminates various special sciences (geometry, arithmetic, astronomy, &c.), each of which has its own appropriate matter, and special *principia* from which it takes its departure. But there are also certain *principia* common to them all; and these he considers to fall under the cognizance of one grand comprehensive science, which includes all the rest; First Philosophy or Ontology — the science of Ens in its most general sense, *quatenus* Ens; while each of the separate

sciences confines itself to one exclusive department of Ens. The geometer does not debate nor prove the first *principia* of his own science; neither those that it has in common with other sciences, nor those peculiar to itself. He takes these for granted, and demonstrates the consequences that logically follow from them. It belongs to the First Philosopher to discuss the *principia* of all. Accordingly, the province of the First Philosopher is all-comprehensive, co-extensive with all the sciences. So also is the province of the Dialectician alike all-comprehensive. Thus far the two agree; but they differ as to method and purpose. The Dialectician seeks to enforce, confront, and value all the different reasons *pro* and *con*, consistent and inconsistent; the First Philosopher performs this too, or supposes it to be performed by others, but proceeds farther: namely, to determine certain Axioms that may be trusted as sure grounds (along with certain other *principia*) for demonstrative conclusions in science.

Aristotle describes in his Analytica the process of Demonstration, and the conditions required to render it valid. But what is the point of departure for this process? Aristotle declares that there cannot be a regress without end, demonstrating one conclusion from certain premisses, then demonstrating those premisses from others, and so on. You must arrive ultimately at some premisses that are themselves undemonstrable, but that may be trusted as ground from whence to start in demonstrating conclusions. All demonstration is carried on through a middle term, which links together the two terms of the conclusion, though itself does not appear in the conclusion. Those undemonstrable propositions, from which demonstration begins, must be known without a middle term, that is, *immediately* known; they must be known in themselves, that is, not through any other propositions; they must be better known than the conclusions derived from them; they must be propositions first and most knowable. But these two last epithets (Aristotle often repeats) have two meanings: first and most knowable *by nature* or *absolutely*, are the most universal propositions; first and most knowable *to us*, are those propositions declaring the particular facts of sense. These two meanings designate truths correlative to each other, but at opposite ends of the intellectual line of march.

Of these undemonstrable *principia*, indispensable as the grounds of all Demonstrations, some are peculiar to each separate science, others are common to several or to all sciences. These common principles were called Axioms, in mathematics, even in the time of Aristotle. Sometimes, indeed, he designates them as Axioms, without any special reference to mathematics; though he also uses the same name to denote other propositions, not of the like fundamental character. Now, how do we come to know these undemonstrable Axioms and other immediate propositions or *principia*, since we do not know them by demonstration? This is the second question to be answered, in appreciating Aristotle's views about the Philosophy of Common Sense.

He is very explicit in his way of answering this question. He pronounces it absurd to suppose that these immediate *principia* are innate or congenital,—in other words, that we possess them from the beginning, and yet that we remain for a long time without any consciousness of possessing them; seeing that they are the most accurate of all our cognitions. What we possess at the beginning (Aristotle says) is only a mental power of inferior accuracy and dignity. We, as well as all other animals, begin with a congenital discriminative power called sensible perception. With many animals, the data of perception are transient, and soon disappear altogether, so that the cognition of such animals consists in nothing but successive acts of sensible perception. With us, on the contrary, as with some other animals, the data of perception are preserved by memory; accordingly our cognitions include both perceptions and remembrances. Farthermore, we are distinguished even from the better animals by this difference—that with us, but not with them, a rational order of thought grows out of such data of perception, when multiplied and long preserved. And thus out of perception grows memory; out of memory of the same matter often repeated grows experience, since many remembrances of the same thing constitute one numerical experience. Out of such experience, a farther consequence arises, that what is one and the same in all the particulars, (the Universal or the One alongside of the Many), becomes fixed or rests steadily within the mind. Herein lies the *principium* of Art, in reference to Agenda or Facienda—of Science, in reference to Entia.

Thus these cognitive *principia* are not original and determinate possessions of the mind, nor do they spring from any other mental possessions of a higher cognitive order, but simply from data of sensible perception; which data are like runaway soldiers in a panic, first one

stops his flight and halts, then a second follows the example, afterwards a third and fourth, until at length an orderly array is obtained. Our minds are so constituted as to render this possible. If a single individual impression is thus detained, it will presently acquire the character of a Universal in the mind; for, though we perceive the particular, our perception is of the Universal (*i.e.*, when we perceive Kallias, our perception is of man generally, not of the man Kallias). Again the fixture of these lowest Universals in the mind will bring in those of the next highest order; until at length the Summa Genera and the absolute Universals acquire a steady establishment therein. Thus, from this or that particular animal, we shall rise as high as Animal universally; and so on from Animal upwards.

We thus see clearly (Aristotle says) that only by Induction can we come to know the first *principia* of Demonstration; for it is by this process that sensible perception engraves the Universal on our minds.[c] We begin by the *notiora nobis* (Particulars), and ascend to the *notiora naturâ* or *simpliciter* (Universals). Some among our mental habits that are conversant with truth, are also capable of falsehood (such as Opinion and Reasoning): others are not so capable, but embrace uniformly truth and nothing but truth; such are Science and Intellect (Νοῦς). Intellect is the only source more accurate than Science. Now the *principia* of Demonstration are more accurate than the demonstrations themselves, yet they cannot (as we have already observed) be the objects of Science. They must therefore be the object of what is more accurate than Science, namely, of Intellect. Intellect and the objects of Intellect will thus be the *principia* of Science and of the objects of Science. But these principles are not intuitive data or revelations. They are acquisitions gradually made; and there is a regular road whereby we travel up to them, quite distinct from the road whereby we travel down from them to scientific conclusions.

The chapter just indicated in the Analytica Posteriora, attesting the growth of those universals that form the *principia* of demonstration out of the particulars of sense, may be illustrated by a similar statement in the First Book of the Metaphysica. Here, after stating that sensible perception is common to all animals, Aristotle distinguishes the lowest among animals, who have this alone; then, a class next above them, who have it along with phantasy and memory, and some of whom are intelligent (like bees), yet still cannot learn, from being destitute of hearing; farther another class, one stage higher, who hear, and therefore can be taught something, yet arrive only at a scanty sum of experience; lastly, still higher, the class men, who possess a large stock of phantasy, memory, and experience, fructifying into science and art.[a] Experience (Aristotle says) is of particular facts; Art and Science are of Universals. Art is attained, when out of many conceptions of experience there arises one universal persuasion respecting phenomena similar to each other. We may know that Kallias, sick of a certain disease—that Sokrates, likewise sick of it—that A, B, C, and other individuals besides, have been cured by a given remedy; but this persuasion respecting ever so many individual cases, is mere matter of experience. When, however, we proceed to generalize these cases, and then affirm that the remedy cures all persons suffering under the same disease, circumscribed by specific marks —fever or biliousness—this is Art or Science. One man may know the particular cases empirically, without having generalized them into a doctrine; another may have learnt the general doctrine, with little or no knowledge of the particular cases. Of these two, the last is the wiser and more philosophical man; but the first may be the more effective and successful as a practitioner.

In the passage above noticed, Aristotle draws the line of intellectual distinction between man and the lower animals. If he had considered that it was the pre-

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[c] Aristot. Anal. Post. II. p. 100, b. 3: *δῆλον δὴ ὅτι ἡμῖν τὰ πρῶτα ἐπαγωγῇ γνωρίζειν ἀναγκαῖον· καὶ γὰρ καὶ αἴσθησις οὕτω τὸ καθόλου ἐμποιεῖ*; also ibid. I. xviii., p. 81, b. 3, upon which passage Waitz, in his note, explains as follows (p. 347):—"Sententia nostri loci hæc est. Universales propositiones omnes inductione comparantur, quum etiam in iis, quæ a sensibus maxime aliena videntur, et quæ, ut mathematica (*τὰ ἐξ ἀφαιρέσεως*), cogitatione separantur a materia quacum conjuncta sunt, inductione probentur ea quæ de genere (*e.g.*, de linea vel de corpore mathematico), ad quod demonstratio pertineat, prædicentur *καθ' αὑτά* et cum ejus natura conjuncta sint. Inductio autem iis nititur quæ sensibus percipiuntur: nam res singulares sentiuntur, scientia vero rerum singularium non datur sine inductione, non datur inductio sine sensu."

[a] Aristot. Metaphys. A. i. p. 980, a. 26, seq.: *φρόνιμα μὲν ἄνευ τοῦ μανθάνειν, ὅσα μὴ δύναται τῶν ψόφων ἀκούειν, οἷον μέλιττα, καὶ εἴ τι τοιοῦτον ἄλλο γένος ζῴων ἔστιν.*

We remark here the line that he draws between the intelligence of bees—depending altogether upon sense, memory, and experience—and the higher intelligence which is superadded by the use of language; when it becomes possible to teach and learn, and when general conceptions can be brought into view through appropriate names.

rogative of man to possess a stock of intuitive general truths, ready-made, and independent of experience, this was the occasion for saying so. He says the exact contrary. No modern psychologist could proclaim more fully than Aristotle here does the derivation of all general concepts and general propositions from the phenomena of sense, through the successive stages of memory, association, comparison, abstraction. No one could give a more explicit acknowledgment of Induction from particulars of sense, as the process whereby we reach ultimately those propositions of the highest universality, as well as of the highest certainty; from whence, by legitimate deductive syllogism, we descend to demonstrate various conclusions. There is nothing in Aristotle about generalities originally inherent in the mind, connate although dormant at first and unknown, until they are evoked or elicited by the senses; nothing to countenance that nice distinction eulogized so emphatically by Hamilton (p. 772, a. note): "Cognitio nostra omnis à mente primam originem, à sensibus exordium habet primum." In Aristotle's view, the senses furnish both *originem* and *exordium:* the successive stages of mental procedure, whereby we rise from sense to universal propositions, are multiplied and gradual, without any break. He even goes so far as to say that we have *sensible perception* of the Universal. His language undoubtedly calls for much criticism here. We shall only say that it discountenances altogether the doctrine that represents the Mind or Intellect as an original source of First or Universal Truths peculiar to itself. That opinion is mentioned by Aristotle, but mentioned only to be rejected. He denies that the mind possesses any such ready-made stores, latent until elicited into consciousness. Moreover, it is remarkable that the ground whereon he denies it is much the same as that whereon the advocates of intuitions affirm it, viz., the supreme accuracy of these axioms. Aristotle cannot believe that the mind includes cognitions of such value, without being conscious thereof. Nor will he grant that the mind possesses any native and inherent power of originating these inestimable *principia.*[a] He declares that they are generated in the mind only by the slow process of induction, as above described; beginning from the perceptive power (common to man with animals), together with that first stage of the intelligence (judging or discriminative) which he combines or identifies with perception, considering it to be alike congenital. From this humble basis men can rise to the highest grades of cognition, though animals cannot. We even become competent (Aristotle says) to have sensible perception of the Universal; in the man Kallias, we see Man; in the ox feeding near us, we see Animal.

It must be remembered that, when Aristotle, in this analysis of cognition, speaks of Induction, he means induction completely and accurately performed; just as, when he talks of Demonstration, he intends a good and legitimate demonstration; and just as (to use his own illustration in the Nikomachean Ethica), when he reasons upon a harper, or other professional artist, he always tacitly implies a good and accomplished artist. Induction thus understood, and Demonstration, he considers to be the two processes for obtaining scientific faith or conviction; both of them being alike cogent and necessary, but Induction even more so than Demonstration; because, if the *principia* furnished by the former were not necessary, neither could the conclusions deduced from them by the latter be necessary. Induction may thus stand alone without Demonstration, but Demonstration pre-supposes and postulates Induction. Accordingly, when Aristotle proceeds to specify those functions of mind wherewith the inductive *principia* and the demonstrated conclusions correlate, he refers both of them to functions wherein (according to him) the mind is unerring and infallible —Intellect (Νοῦς) and Science. But, between these two he ranks Intellect as the higher, and he refers the inductive *principia* to Intellect. He does not mean that Intellect (Νοῦς) generates or produces these principles. On the contrary, he distinctly negatives such a supposition, and declares that no generative force of this high order resides in the Intellect; while he tells us, with equal distinctness, that they are generated from a lower source—sensible perception,

[a] Aristot. Anal. Post. II. xix. p. 99, b. 26: *εἰ μὲν δὴ ἔχομεν αὐτάς, ἄτοπον· συμβαίνει γὰρ ἀκριβεστέρας ἔχοντας γνώσεις ἀποδείξεως λανθάνειν.—φανερὸν τοίνυν ὅτι οὔτ' ἔχειν οἷόν τε, οὔτ' ἀγνοοῦσι καὶ μηδεμίαν ἔχουσιν ἕξιν ἐγγίνεσθαι. ἀνάγκη ἄρα ἔχειν μέν τινα δύναμιν, μὴ τοιαύτην δ' ἔχειν ἣ ἔσται τούτων τιμιωτέρα κατ' ἀκρίβειαν.* See Metaphys. A. ix. p. 993, a. 1.

Some modern psychologists, who admit that general propositions of a lower degree of universality are raised from induction and sense, contend that propositions of the highest universality are not so raised, but are the intuitive offspring of the intellect. Aristotle does not countenance such a doctrine: he says (Metaphys. A. ii. p. 982, a. 25) that these truths furthest removed from sense are the most difficult to know of all. If they were intuitions they would be the common possession of the race.

and through the gradual upward march of the inductive process. To say that they originate from Sense through Induction, and nevertheless to refer them to Intellect (Νοῦς) as their subjective correlate,—are not positions inconsistent with each other, in the view of Aristotle. He expressly distinguishes the two points, as requiring to be separately dealt with. By referring the *principia* to Intellect (Νοῦς), he does not intend to indicate their generating source, but their evidentiary value and dignity when generated and matured. They possess, in his view, the maximum of dignity, certainty, cogency, and necessity, because it is from them that even Demonstration derives the necessity of its conclusions; accordingly (pursuant to the inclination of the ancient philosophers for presuming affinity and commensurate dignity between the *cognitum* and the *cognoscens*), they belong as objective correlates to the most unerring cognitive function—the Intellect (Νοῦς). It is the Intellect that grasps these principles, and applies them to their legitimate purpose of scientific demonstration; hence Aristotle calls Intellect not only the *principium* of Science, but the *principium principii*.

In the Analytica, from which we have hitherto cited, Aristotle explains the structure of the Syllogism and the process of Demonstration. He has in view mainly (though not exclusively) the more exact sciences, arithmetic, geometry, astronomy, &c. But he expressly tells us that all departments of inquiry are not capable of this exactness; that some come nearer to it than others; that we must be careful to require no more exactness from each than the subject admits; and that the method adopted by us must be such as will attain the admissible maximum of exactness. Now each subject has some *principia*, and among them definitions, peculiar to itself; though there are also some *principia* common to all, and essential to the march of each. In some departments of study (Aristotle says) we get our view of *principia* or first principles by induction; in others, by sensible perception; in others again, by habitual action in a certain way; and by various other processes also. In each, it is important to look for first principles in the way naturally appropriate to the matter before us; for this is more than half of the whole work; upon right first principles will mainly depend the value of our conclusions. For what concerns Ethics, Aristotle tells us that the first principles are acquired through a course of well-directed habitual action; and that they will be acquired easily, as well as certainly, if such a course be enforced on youth from the beginning. In the beginning of the Physica, he starts from that antithesis, so often found in his writings, between what is more knowable to us and what is more knowable absolutely or by nature. The natural march of knowledge is to ascend from the first of these two termini (particulars of sense) upward to the second or opposite,* and then to descend downward by demonstration or deduction. The fact of motion he proves (against Melissus and Parmenides) by an express appeal to induction, as sufficient and conclusive evidence. In physical science (he says) the final appeal must be to the things and facts perceived by sense. In the treatise De Cœlo he lays it down that the *principia* must be homogeneous with the matters they belong to: the *principia* of perceivable matters must be themselves perceivable; those of eternal matters must be eternal; those of perishable matters, perishable.

The treatises composing the Organon stand apart among Aristotle's works. In them he undertakes (for the first time in the history of mankind) the systematic study of significant propositions enunciative of truth and falsehood. He analyses their constituent elements; he specifies the conditions determining the consistency or inconsistency of such propositions one with another; he teaches to arrange the propositions in such ways as to detect and dismiss the inconsistent, keeping our hold of the consistent. Here the signification of terms and propositions is never out of sight: the facts and realities of nature are regarded as so signified. Now all language becomes significant only through the convention of mankind, according to Aristotle's express declaration: it is used by speakers to communicate what they mean to hearers that understand them. We see thus that in these treatises the subjective point of view is brought into the foreground—the enunciation of what we see, remember, believe, disbelieve, doubt, anticipate, &c. It is not meant that the objective point of view is eliminated, but that it is taken in implication with, and in dependence upon, the subjective. Neither the one nor the other is dropped or hidden. It is under this double and conjoint point of view that Aristotle, in the Organon, presents to us, not only the processes of demonstration and confutation, but also the fundamental *principia* or axioms thereof; which axioms in the Analytica Posteriora (as we have already seen) he

* See also Aristot. Metaphys. Z. iv. p. 1029, b. 1-14.

expressly declares to originate from the data of sense, and to be raised and generalized by induction.

Such is the way that Aristotle represents the fundamental principles of syllogistic Demonstration, when he deals with them as portions of Logic. But we also find him dealing with them as portions of Ontology or First Philosophy (this being his manner of characterizing his own treatise, now commonly known as the Metaphysica). To that science he decides, after some preliminary debate, that the task of formulating and defending the axioms belongs, because the application of these axioms is quite universal, for all grades and varieties of Entia. Ontology treats of Ens in its largest sense, with all its properties *quatenus* Ens, including Unum, Multa, Idem, Diversum, Posterius, Prius, Genus, Species, Totum, Partes, &c. Now Ontology is with Aristotle a purely objective science; that is, a science wherein the subjective is dropt out of sight, and no account taken of it, or wherein (to state the same fact in the language of relativity) the believing and reasoning subject is supposed constant. Ontology is the most comprehensive among all the objective sciences. Each of these sciences singles out a certain portion of it for special study. In treating the logical axioms as portions of Ontology, Aristotle undertakes to show their objective value; and this purpose, while it carries him away from the point of view that we remarked as prevailing in the Organon, at the same time brings him into conflict with various theories, all of them in his time more or less current. Several philosophers—Herakleitus, Anaxagoras, Demokritus, Protagoras—had propounded theories which Aristotle here impugns. We do not mean that these philosophers expressly denied his fundamental axioms (which they probably never distinctly stated to themselves, and which Aristotle was the first to formulate), but their theories were to a certain extent inconsistent with these axioms, and were regarded by Aristotle as wholly inconsistent.

The two Axioms announced in the Metaphysica, and vindicated by Aristotle, are—

1. The Maxim of Contradiction: It is impossible for the same thing to be and not to be; It is impossible for the same to belong and not to belong to the same, at the same time and in the same sense. This is the statement of the Maxim as a formula of Ontology. Announced as a formula of Logic, it would stand thus: The same proposition cannot be both true and false at the same time; You cannot both believe and disbelieve the same proposition at the same time; You cannot believe, at the same time, propositions contrary or contradictory. These last-mentioned formulæ are the logical ways of stating the axiom. They present it in reference to the believing or disbelieving (affirming or denying) subject, distinctly brought to view along with the matter believed; not exclusively in reference to the matter believed, to the omission of the believer.

2. The Maxim of Excluded Middle: A given attribute either does belong, or does not belong to a subject (*i.e.*, provided that it has any relation to the subject at all)—there is no medium, no real condition intermediate between the two. This is the ontological formula; and it will stand thus, when translated into Logic: Between a proposition and its contradictory opposite there is no tenable halting ground; If you disbelieve the one, you must pass at once to the belief of the other—you cannot at the same time disbelieve the other.

These two maxims thus teach—the first, that we cannot at the same time *believe* both a proposition and its contradictory opposite; the second, that we cannot at the same time *disbelieve* them both.[a]

Now, Herakleitus, in his theory (a theory propounded much before the time of Protagoras and the persons called Sophists), denied all permanence or durability in nature, and recognized nothing except perpetual movement and change. He denied both durable substances and durable attributes; he considered nothing to be lasting except the universal law or principle of change—the ever-renewed junction or co-existence of contraries and the perpetual transition of one contrary into the other. This view of the facts of nature was adopted by several other physical philosophers besides.[b] Indeed it lay at the bottom of Plato's new coinage — Rational Types or Forms, at once universal and real. The Maxim of Contradiction is intended by Aristotle to controvert Herakleitus, and to uphold durable substances with definite attributes.

Again, the theory of Anaxagoras denied all simple bodies (excepting Νοῦς) and all definite attributes. He held that everything was mingled with

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[a] We have here discussed these two maxims chiefly in reference to Aristotle's manner of presenting them, and to the conceptions of his predecessors and contemporaries. An excellent view of the Maxims themselves, in their true meaning and value, will be found in Mr. John Stuart Mill's Examination of the Philosophy of Sir W. Hamilton ch. xxi. pp. 406-421.

[b] See 'Plato and other Comp. of Sokr.' I. i. pp 28-38

everything else, though there might be some one or other predominant constituent. In all the changes visible throughout nature, there was no generation of anything new, but only the coming into prominence of some constituent that had before been comparatively latent. According to this theory, you could neither wholly affirm, nor wholly deny, any attribute of its subject. Both affirmation and denial were untrue: the real relation between the two was something half-way between affirmation and denial. The Maxim of Excluded Middle is maintained by Aristotle as a doctrine in opposition to this theory of Anaxagoras.[a]

Both the two above-mentioned theories are objective. A third, that of Protagoras—"Homo Mensura" brings forward prominently the subjective, and is quite distinct from either. Aristotle does indeed treat the Protagorean theory as substantially identical with that of Herakleitus, and as standing or falling therewith. This seems a mistake: the theory of Protagoras is as much opposed to Herakleitus as to Aristotle.

We have now to see how Aristotle sustains these two Axioms (which he calls "the firmest of all truths and the most assuredly known") against theories opposed to them. In the first place, he repeats here what he had declared in the Analytica Posteriora—that they cannot be directly demonstrated, though they are themselves the *principia* of all demonstration. Some persons indeed thought that these Axioms were demonstrable; but this is an error, proceeding (he says) from complete ignorance of analytical theory. How, then, are these Axioms to be proved against Herakleitus? Aristotle had told us in the Analytica that axioms were derived from particulars of sense by Induction, and apprehended or approved by the Νοῦς. He does not repeat that observation here: but he intimates that there is only one process available for defending them, and that process amounts to an appeal to induction. You can give no ontological reason in support of the Axioms, except what will be condemned as a *petitio principii*; you must take them in their logical aspect, as enunciated in significant propositions. You must require the Herakleitean adversary to answer some question affirmatively, in terms significant both to himself and to others, and in a proposition declaring his belief on the point. If he will not do this, you can hold no discussion with him; he might as well be deaf and dumb: he is no better than a plant (to use Aristotle's own comparison). If he does it, he has bound himself to something determinate: first, the signification of the terms is a fact, excluding what is contrary or contradictory; next in declaring his belief, he at the same time declares that he does not believe in the contrary or contradictory, and is so understood by the hearers. We may grant what his theory affirms—that the subject of a proposition is continually under some change or movement; yet the identity designated by its name is still maintained,[a] and many true predications respecting it remain true in spite of its partial change. The argument in defence of the Maxim of Contradiction is, that it is a postulate implied in all the particular statements as to matters of daily experience, that a man understands and acts upon when heard from his neighbours; a postulate such that, if you deny it, no speech is either significant or trustworthy to inform and guide those who hear it. If the speaker both affirms and denies the same fact at once, no information is conveyed, nor can the hearer act upon the words. Thus, in the Acharnenses of Aristophanes, Dikæopolis knocks at the door of Euripides, and inquires whether the poet is within; Kephisophon, the attendant, answers—"Euripides is within and not within." This answer is unintelligible; Dikæopolis cannot act upon it; until Kephisophon explains that "not within" is intended metaphorically. Then, again, all the actions in detail of a man's life are founded upon his own belief of some facts and disbelief of other facts: he goes to Megara, believing that the person whom he desires to see is at Megara, and at the same time disbelieving the contrary: he acts upon his belief both as to what is good and what is not good, in the way of pursuit and avoidance. You may cite innumerable examples both of speech and action in the detail of life, which the Herakleitean must go through like other persons: and when, if he proceeded upon his own theory, he could neither give nor receive information by speech, nor ground any action upon the beliefs which he declares to co-exist in his own mind. Accordingly, the Herakleitean Kratylus (so Aristotle says) renounced the use of affirmative speech, and simply pointed with his finger.[b]

[a] See 'Plato and other Comp. of Sokr.' I. i. pp. 49-57.

[a] This argument is given by Aristotle, Metaph. Γ. v. p. 1010, a. 7-25, contrasting change κατὰ τὸ ποσόν and change κατὰ τὸ ποιόν.

[b] Aristot. Metaph. Γ. v. p. 1010, a. 12. Compare Plato, Theætet. pp. 179-180, about the aversion of the Herakleiteans for clear issues and propositions.

The Maxim of Contradiction is thus seen to be only the general expression of a postulate implied in all such particular speeches as communicate real information. It is proved by a very copious and diversified Induction, from matters of experience familiar to every individual person. It is not less true in regard to propositions affirming changes, motions, or events, than in regard to those declaring durable states or attributes.

In the long pleading of Aristotle on behalf of the Maxim of Contradiction against the Herakleiteans, the portion of it that appeals to Induction is the really forcible portion; conforming as it does to what he had laid down in the Analytica Posteriora about the inductive origin of the *principia* of demonstration. He employs, however, besides, several other dialectical arguments built more or less upon theories of his own, and therefore not likely to weigh much with an Herakleitean theorist; who—arguing, as he did argue, that (because neither subject nor predicate was ever unchanged or stable for two moments together) no true proposition could be framed but was at the same time false, and that contraries were in perpetual co-existence—could not by any general reasoning be involved in greater contradiction and inconsistency than he at once openly proclaimed.[a] It can only be shown that such a doctrine cannot be reconciled with the necessities of daily speech, as practised by himself, as well as by others. We read, indeed, one ingenious argument whereby Aristotle adopts this belief in the co-existence of contraries, but explains it in a manner of his own, through his much employed distinction between potential and actual existence. Two contraries cannot co-exist (he says) in actuality; but they both may and do co-exist in different senses—one or both of them being potential. This, however, is a theory totally different from that of Herakleitus; coincident only in words and in seeming. It does indeed eliminate the contradiction; but that very contradiction formed the characteristic feature and keystone of the Herakleitean theory. The case against this last theory is, that it is at variance with psychological facts, by incorrectly assuming the co-existence of contradictory beliefs in the mind; and that it conflicts both with postulates implied in the daily colloquy of detail between man and man, and with the volitional preferences that determine individual action. All of these are founded on a belief in the regular sequence of our sensations, and in the at least temporary durability of combined potential aggregates of sensations, which we enunciate in the language of definite attributes belonging to definite substances. This language, the common medium of communication among non-theorizing men, is accepted as a basis, and is generalized and regularized, in the logical theories of Aristotle.

The doctrine here mentioned is vindicated by Aristotle, not only against Herakleitus, by asserting the Maxim of Contradiction, but also against Anaxagoras, by asserting the Maxim of Excluded Middle. Here we have the second *principium* of Demonstration, which, if it required to be defended at all, can only be defended (like the first) by a process of Induction. Aristotle adduces several arguments in support of it, some of which involve an appeal to Induction, though not broadly or openly avowed; but others of them assume what adversaries, and Anaxagoras especially, were not likely to grant. We must remember that both Anaxagoras and Herakleitus propounded their theories as portions of Physical Philosophy or of Ontology; and that in their time no such logical principles and distinctions as those that Aristotle lays down in the Organon, had yet been made known or pressed upon their attention. Now, Aristotle, while professing to defend these Axioms as data of Ontology, forgets that they deal with the logical aspect of Ontology, as formulated in methodical propositions. His view of the Axioms cannot be properly appreciated without a classification of propositions, such as neither Herakleitus nor Anaxagoras found existing or originated for themselves. Aristotle has taught us what Herakleitus and Anaxagoras had not been taught—to distinguish separate propositions as universal, particular and singular; and to distinguish pairs of propositions as contrary, sub-contrary, and contradictory. To take the simplest case, that of a singular proposition, in regard to which the distinction between contrary and contradictory has no application,—such as the answer (cited above) of Kephisophon about Euripides. Here Aristotle would justly contend that the two propositions—Euripides is within, Euripides is not within—could not be either both of them true, or both of them false;

[a] This is stated by Aristotle himself, Metaph. Γ. vi. p. 1011, a. 15: *οἱ δ' ἐν τῷ λόγῳ τὴν βίαν μόνον ζητοῦντες ἀδύνατον ζητοῦσιν· ἐναντία γὰρ εἰπεῖν ἀξιοῦσιν, εὐθὺς ἐναντία λέγοντες.* He here, indeed, applies this observation immediately to the Protagoreans, against whom it does not tell, instead of the Herakleiteans, against whom it does tell. The whole of the reasoning in this part of the Metaphysica is directed indiscriminately, and in the same words, against Protagoreans and Herakleiteans.

that is, that we could neither believe both, nor disbelieve both. If Kephisophon had answered, Euripides is neither within nor not within, Dikæopolis would have found himself as much at a loss with the two negatives as he was with the two affirmatives. In regard to singular propositions, neither the doctrine of Herakleitus (to believe both affirmation and negation) nor that of Anaxagoras (to disbelieve both) is admissible. But, when in place of singular propositions we take either universal or particular propositions the rule to follow is no longer so simple and peremptory. The universal affirmative and the universal negative are *contrary;* the particular affirmative and the particular negative are *sub-contrary;* the universal affirmative and the particular negative, or the universal negative and the particular affirmative, are *contradictory.* It is now noted in all manuals of Logic, that of two contrary propositions, both cannot be true, but both may be false; that of two sub-contraries, both may be true, but both cannot be false; and that of two contradictories, one must be true and the other false.

III.

METAPHYSICA.

[The following Abstract—when not translation—of six books (Γ, Ε, Ζ, Η, Θ, Λ) out of the fourteen included under the title 'Metaphysica,' may be said to cover the whole of Aristotle's dogmatic exposition of First Philosophy. According to the view of Brandis, now in its main features generally accepted, the exposition continued through Books Γ, Ε, Ζ, Η, reaches back to Books Α and Β, and comes to an end with Book Θ. Still it is only with Book Γ that the properly didactic treatment begins, Book Α being a historical review of previous opinion, and Book Β a mere collection of ἀπορίαι subjected to a preliminary dialectical handling; while, at the other end, Book Λ, though it has no direct connection with Book Θ is, especially in its latter part, of undeniable importance for Aristotle's metaphysical doctrine.

The remaining books are known as α, Δ, Ι, Κ, Μ, Ν. The short Book α is entirely unconnected with any of the others, and most probably is not the work of Aristotle. Book Δ (περὶ τῶν ποσαχῶς λεγομένων)—a vocabulary of philosophical terms—is Aristotelian beyond question, being referred to occasionally in the chief books; but it lies quite apart from the exposition proper. Book Ι—dealing with Unity and Opposites—though it also has no place in the actual line of treatment, is truly ontological in character, and probably was intended to fall within some larger scheme of metaphysical doctrine; the like, as far as can be judged, being true of Books of Μ and Ν, containing together a criticism of Pythagorean and Platonic theories. Finally, Book Κ, consisting in part of an epitomized excerpt from the Physica—hardly from the hand of Aristotle, gives otherwise only a sketch in outline of the argument of Books Β Γ, Ε, and thus, although Aristotelian, is to be discounted.

The author nowhere states the principle upon which he selected the six books for a preliminary Abstract; but the actual selection, joined to various indications in the Abstract and marginal notes in his copies of the Metaphysica, leaves no doubt that he accepted the view of Brandis, more especially as set forth by Bonitz. On the whole question of the Canon of the Metaphysica, Bonitz's Introduction to his Commentary may with advantage be consulted.]

Book Γ.

In this First Philosophy, Aristotle analyses and illustrates the meaning of the *generalissima* of language—the most general and abstract words which language includes. All these are words in common and frequent use; in the process of framing or putting together language, they have become permanently stamped and circulated as the result of many previous comparisons, gone through, but afterwards forgotten, or perhaps gone through at first without any distinct consciousness. Men employ these words familiarly in ordinary speech, and are understood by others when they do so. For the most part, they employ the words correctly and consistently, in the affirmation of particular propositions relating to topics of daily life and experience. But this is not always or uniformly the case. Sometimes, more or less often, men fall into error and inconsistency in the employment of these familiar general terms. The First Philosophy takes up the generalities and established phrases in this condition; following back analytically the synthetical process which the framers of language have pursued without knowing or at least without recording it, and bringing under conscious attention the different meanings, more or fewer, in which these general words are used.

Philosophia Prima devotes itself, specially and in the first instance, to Ens *quatenus* Ens in all its bearings; being thus distinguished from mathematics and other particular sciences, each of which devotes itself to a separate branch of Ens (p. 1003, a. 25). It searches into the First Causes or Elements of Ens *per se*, not *per accidens* (a. 31). But Ens is a *commune*, not generically, but analogically; constituted by common relationship to one and the same terminus, as everything healthy is related to health. The Principle (ἀρχή) of all Entia is Essence (οὐσία); but some Entia are so called as being affections of Essence; others, as being a transition to Essence, or as destruction, privation, quality, efficient or generative cause, of Essence or its *analoga*; others, again, as being negations (ἀποφάσεις) thereof, whence, for example, we say that Non-Ens *is* Non-Ens (b. 6—10). There is one science of all these primary, secondary, tertiary, &c., Entia; just as there is one science of all things healthy, of the primary, the secondary, the tertiary, &c., *quatenus* healthy. But, in all such matters, that science bears in the first instance and specially (κυρίως) on the Primum Aliquid, from which all the secondary and other derivatives take their departure, and upon which they depend (b. 16). Accordingly, in the present case, since Essence is the Primum Aliquid, the province of first Philosophy is to investigate the causes and

principles of Essences in all their varieties (b. 18-22). Now whatever varieties there are of Ens, the like varieties there are of Unum; for the two are always implicated together, though the words are not absolutely the same in meaning (b. 24-35). Accordingly both Ens and Unum with all the varieties of each belong to Philosophia Prima; likewise Idem, Simile, &c., and the opposites thereof. All the opposites may be traced in the last analysis to this foundation—the antithesis of Unum and Multa (p. 1004, a. 1). We must set forth and discriminate the different varieties—primary, secondary, tertiary, &c.—of Idem and Simile, and also of their opposites, Diversum and Dissimile; and we must show how they are derived from or related to Primum Idem, &c., just as we must do in the case of Ens and Unum. All this task belongs to First Philosophy (a. 20-30). Aristotle speaks of ὁ φιλόσοφος, as meaning the master of Philosophia Prima (b. 1; B. p. 997, a. 14).

If these investigations do not belong to the First Philosopher, to which among the other investigators can they belong? Who is to enquire whether Sokrates, and Sokrates sitting, is the same person? Whether Unum is opposite to Unum? In how many senses Opposite can be said? (p. 1004, b 3). All these are affections *per se* of Unum *quatenus* Unum, and of Ens *quatenus* Ens, not *quatenus* numbers, or lines, or fire; that is, they are propria (*sensu logico*) of Ens and Unum (not included in the notion or definition, but deducible therefrom—"notæ consecutione notionis") just as odd and even, proportionality, equality, excess and defect, are propria of numbers; and there are other propria of solids, whether moved or unmoved, heavy or light. It is these propria of Ens and Unum that Philosophia Prima undertakes to explain (b. 7-16), and which others fail to explain, because they take no account of οὐσία (b. 10), or of the fundamental Ens or Essentia to which these belong as propria.

These Propria of Ens are the οἰκεῖα—the special and peculiar matter or principles—of Philosophia Prima. That all of them belong in this special way to the First Philosopher, we may farther see by the fact that all of them are handled by the Dialectician and the Sophist, who assume an attitude counterfeiting the Philosopher. All three travel over the same ground, and deal with Ens, as a matter common to all (p. 1004, b. 20). But the Sophist differs from the Philosopher in his purpose, inasmuch as he aims only at giving the false appearance of wisdom without the reality, while the Dialectician differs from the Philosopher in his manner of handling (τῷ τρόπῳ τῆς δυνάμεως—b. 24). The Dialectician discusses the subject in a tentative way, from many different points of view, suggested by current opinions; the Philosopher marches by a straight and assured road from the appropriate principles of his science to certain conclusions and cognitions.

The same view of the scope and extent of Philosophia Prima may be made out in another way. Almost all philosophers affirm that Entia are composed of contraries, and may be traced back to opposite principles—odd and even, hot and cold, limit and the unlimited, friendship and enmity, &c. Now these and all other contraries may be traced back to Unum and Multa: this we may assume (p. 1005, a. 1; according to Alexander Aph., it had been shown in the treatise De Bono—Schol. p. 648, a. 38. Br.).

Though it be true, therefore, that neither Ens nor Unum is a true genus, nor separable, but both of them aggregates of analogical derivatives, yet since all these derivatives have their root in one and the same *fundamentum*, the study of all of them belongs to one and the same science (p. 1005, a. 6-11). It is not the province of the geometer to examine what is The Opposite, The Perfect, Ens, Unum, Idem, Diversum, except in their application to his own problems. The general enquiry devolves upon the First Philosopher; who will investigate Ens *quatenus* Ens, together with the belongings or appendages (τὰ ὑπάρχοντα) of Ens *quatenus* Ens, including Prius, Posterius, Genus, Species, Totum, Pars, and such like (a. 11-18).

It falls to the First Philosopher also to investigate and explain what mathematicians call their Axioms: the mathematician ought not to do this himself, but to leave it to the First Philosopher. These Axioms are, in their highest generality, affirmations respecting Ens *quatenus* Ens, all of which belong to the First Philosopher; from whom the mathematician accepts them, and applies them as far as his own department requires (p. 1005, a. 20, seq.).

In First Philosophy, the firmest, best known, and most unquestionable of all principles is this: It is impossible for the same predicate at the same time and in the same sense to belong and not to belong to the same subject (p. 1005, b. 20). No one can at the same time believe that the same thing both is and is not; though Herakleitus professed to believe this, we must not suppose that

he really did believe it (b. 25). No man can hold two contrary opinions at the same time (b. 31). This is by nature the first principle of all other axioms; to which principle all demonstrations are in the last resort brought back (b. 33: *φύσει γὰρ ἀρχὴ καὶ τῶν ἄλλων ἀξιωμάτων αὕτη πάντων*).

Aristotle then proceeds to explain and vindicate at length this *ἀρχή*—the Principle of Contradiction, which many at that time denied. This principle is at once the most knowable, and noway assumed as hypothesis (*γνωριμωτάτην καὶ ἀνυπόθετον*—p. 1005, b. 13). You cannot indeed demonstrate it to be true; the very attempt to demonstrate it would be unphilosophical: demonstration of every thing, is an impossibility. You cannot march upwards in an infinite progression of demonstrations; you must arrive ultimately at some first truth which is not demonstrable; and, if any such first truth is to be recognized, no one can point out any truth better entitled to such privilege than the Principle of Contradiction (p. 1006, a. 11). But you can convict an opponent of self-contradiction (*ἀποδεῖξαι ἐλεγκτικῶς*, a. 12, 15), if he will only consent to affirm any proposition in significant terms—that is, in terms which he admits to be significant to himself and which he intends as such to others; in other words, if he will enter into dialogue with you, for without significant speech there can be no dialogue with him at all (a. 21).

When the opponent has shown his willingness to comply with the conditions of dialogue, by advancing a proposition in terms each having one definite signification, it is plain, by his own admission, that the proposition does not both signify and not signify the same. First, the copula of the proposition (*est*) does not signify what would be signified if the copula were *non est;* so that here is one case wherein the affirmative and the negative cannot be both of them true (p. 1006, a. 30; see Alex. Schol. and Bonitz's note). Next, let the subject of the proposition be *homo;* a term having only one single definite signification, or perhaps having two or three (or any definite number of) distinct significations, each definite. If the number of distinct significations be indefinite, the term is unfit for the purpose of dialogue (a. 30-b. 10). The term *homo* will signify one thing only; it will have one determinate essence and definition—say *animal bipes:* that is, if any thing be a man, the same will be *animal bipes*. But this last cannot be the essence and definition of *non-homo* also: *non-homo*, as a different name, must have different definition; *homo* and *non-homo* cannot be like *λώπιον* and *ἱμάτιον*, two terms having the same signification, essence, and definition; for *homo* signifies one subject of constant and defined nature, not simply one among many predicates applicable by accident to this same constant subject; it signifies *μίαν φύσιν* and not *ἄλλην τινὰ φύσιν* (Scholia, p. 656, b. 21). Since each name indeed is applied by convention to what it denominates, the name *non-homo* may be applied elsewhere to that which we term *homo;* but this is a mere difference of naming; what bears the name *homo*, and what bears the name *non-homo*, must always be different, if *homo* is defined to signify one determinate nature (b. 22). The one single nature and essence defined as belonging to *homo*, cannot be the same as that belonging to *non-homo*. If any thing be *homo*, the same cannot be *non-homo:* if any thing be *non-homo*, the same cannot be *homo* (b. 25-34). Whoever says that *homo* and *non-homo* have the same meaning, must say *à fortiori* that *homo, fortis, musicus, simus, pulcher*, &c., have the same meaning; for not one of these terms is so directly and emphatically opposite to *homo*, as *non-homo* is. He must therefore admit that the meaning, not merely of all these words, but also of a host besides is the same; in other words, that not merely Opposites are one, but all other things besides, under different names (*ὅτι ἓν πάντα ἔσται καὶ οὐ μόνον τὰ ἀντικείμενα*—p. 1007, a. 6).

This argument is directed against those who maintain that affirmative and negative are both true at once, but who still desire to keep up dialogue (Alex. Schol. p. 658, a. 26, Br.: *τῷ τήν τε ἀντίφασιν συναληθεύειν λέγοντι, καὶ σώζειν βουλομένῳ τὸ διαλέγεσθαι*). No man who maintains this opinion, can keep his consistency in dialogue, if he will only give direct answers to the questions put to him, without annexing provisoes and gratuitous additions to his answers. If you ask him, Whether it is true that Sokrates is *homo?* he ought to answer plainly Yes, or No. He ought not to answer: "Yes, but Sokrates is also *non-homo*," meaning that Sokrates is also the subject of many other accidental predicates—fair, flat-nosed, brave, accomplished, &c. He ought to answer simply to the question, whether the one essence or definition signified by the word man, belongs to Sokrates or not; he ought not to introduce the mention of these accidental predicates, to which the question did not refer. These accidental predicates are infinite in number; he cannot enumerate them all, and therefore he ought not to introduce the mention of

any of them. Sokrates is *homo*, by the essence and definition of the word; he is *non-homo*, ten thousand times over, by accidental predicates; that is, he is fair, brave, musical, flat-nosed, &c., all of which are varieties of the general word *non-homo* (p. 1007, a. 7-19).

Those who contend that both members of the Antiphasis are at once true disallow Essentia altogether, and the distinction between it and Accidens (p. 1007, a. 21). When we say that the word *homo* signifies a certain Essentia, we mean that its Essentia is nothing different from this, and that the being *homo* cannot be the same as the being *non-homo*, or the not being *homo*. Those against whom we are reasoning discard Essentia as distinguished from Accidens, and consider all predicates as Accidentia. *Albus* belongs to *homo* as an accident; but the essence of *albus* does not coincide with that of *homo*, and cannot be predicated of *homo* (a. 32). Upon the theory of these opponents, there would be no Prima Essentia to which all accidents are attached; but this theory is untenable. Accidents cannot be attached one to another in an infinite ascending series (b. 1). You cannot proceed more than two steps upward: first one accident, then a second; the two being joined by belonging to one and the same subject. No accident can be the accident of another accident. Τὸ λευκόν may have the accident μουσικόν, or τὸ μουσικόν may have the accident λευκόν; each of these may be called indifferently the accident of the other; but the truth is, that λευκός and μουσικός are both of them accidents belonging to the common Essentia—*homo*. But, when we affirm *homo est musicus*, we implicate the accident with the Essentia to which it belongs; that Essentia is signified by the subject *homo*. There must thus be one word which has signification as Essentia; and, when such is the case, we have already shown that both members of the Antiphasis cannot be predicated at once (b. 5-18).

(Alexander, in Scholia, p. 658, b. 40-p. 659, b. 14, Br., remarks on this argument of Aristotle: Those who held the opinion here controverted by Aristotle—τὴν ἀντίφασιν συναληθεύειν—had in their minds accidental propositions, in regard to which they were right, except that both members of the Antiphasis cannot be true at the same time. *Sokrates est musicus—Sokrates non est musicus:* these two propositions are both true, in the sense that one or other of them is true only *potentially*, and that both cannot be actually true at the same time. One of them is true, and the other false, at the present moment; but that which is now false has been true in the past, and may become true in the future. Aristotle does not controvert this theory so far as regards accidental propositions; but he maintains that it is untenable about essential propositions, and that the theorists overlooked this distinction.)

Moreover, if you say that both members of the Antiphasis are alike true respecting every predicate of a given subject, you must admit that all things are one (p. 1007, b. 20). The same thing will be at once a wall, a trireme, a man. Respecting every subject, you may always either affirm or deny any given predicate; but, according to this theory, whenever it is true to affirm, it is always equally true to deny. If you can say truly, *Homo non est triremis*, you may say with equal truth, according to the theory before us, *Homo est triremis*. And, of course, *Homo non est triremis* may be said truly; since (still according to this theory) the much more special negative, *Homo non est homo*, may be said truly (b. 32).

Again, if this theory be admitted, the doctrine that every predicate may be either affirmed or denied of any given subject, will no longer hold true. For, if it be true to say of Sokrates both *Est homo* and *Est non-homo:* it must also be true to say of him both *Non est homo* and *Non est non-homo*. If both affirmative and negative may be alike affirmed, both may be alike denied (p. 1008, a. 2-7). If both members of the Antiphasis are alike true, both must be alike false (Alex. Schol. p. 663, a. 14-34).

Again, the theory that both members of the Antiphasis are alike true, is intended by its authors to apply universally or not universally. Every thing is both white and not white, Ens and Non-Ens: or this is true with some propositions, but not with regard to others. If the theorists take the latter ground and allow some exceptions, so far at least as those exceptions reach, firm truth is left (αὗται ἂν εἶεν ὁμολογούμεναι—p. 1008, a. 11). But, if they take the former ground and allow no exceptions, they may still perhaps say: Wherever you can affirm with truth, we can also deny with truth; but, wherever we can deny with truth, we cannot in every case affirm with truth (a. 15). Meeting them upon this last ground, we remark that at any rate some negative propositions are here admitted to be knowable, and we obtain thus much of settled opinion; besides, wherever the negative is knowable, the corresponding affirmative must be still more knowable (a. 18). If they take the former ground

and say that, wherever the negative is true, the affirmative is true also, they must either mean that each of them is true separately, or that neither of them is true separately but that both are true when enunciated together in a couple (a. 19). If they mean the latter, they do not talk either of these things or of any thing else: there is neither speech nor speaker, nothing but non-entity; and how can non-entity either speak or walk (a. 22)? Every thing would be confounded in one. If they mean the former—that affirmative and negative are each alike true taken separately, we reply that, since this must be true as much respecting one subject as respecting another, so there can be no distinction or difference between one subject and another; all must be alike and the same; if there be any difference of any kind, this must constitute a special and exceptional matter, standing apart from the theory now under discussion. Upon this view of the theory in question, then, as well as upon the preceding, we are landed in the same result: all things would be confounded into one (a. 27). All men would speak truly and all men alike (including the theorist himself, by his own admission) would speak falsely. Indeed in discussing with this theorist we have nothing to talk about; for he says nothing. He does not say, It is thus; he does not say, It is not thus; he says, It is both thus and not thus: then, again, he negatives both, saying, It is neither thus nor not thus; so that there is nothing definite in what he says (a. 32).

Again, let us ask, Does he who believes things to be so, believe falsely, and he who believes things not to be so and so, believe falsely also, while he who believes both at once, believes truly? If this last person believes truly, what is meant by the common saying that such and such is the constitution of nature? If you even say that the last person does not indeed believe truly, but believes more truly than he who believes the affirmative alone, or he who believes the negative alone, we still have something definite in the constitution of nature, something which is really true, and not true and false at the same time. But, if there be no more truly or less truly—if all persons alike and equally speak truly and speak falsely—speech is useless to such persons; what they say, they at the same time unsay. If the state of their minds really corresponds to this description—if they believe nothing, but at once think so and so and do not think so and so—how do such persons differ from plants (b. 3-12; see Alexander's Scholion, p. 665, b. 9-17 Br., about the explanation of *μᾶλλον*, and the distinction between *λέγειν* and *ὑπολαμβάνειν*, p. 665, b. 31, seq.)?

It is certain, however, that these theorists are *not* like plants, and do not act as such in matters of ordinary life. They look for water, when thirsty; they keep clear of falling into a well or over a precipice. In regard to what is desirable or undesirable, at least, they do not really act upon their own theory—That both members of the Antiphasis are equally true and equally false. They act upon the contrary theory—That one of the members is true, and the other false. But, if these theorists, admitting that they act thus, say that they do not act thus with any profession of knowing the truth, but simply on the faith of appearance and greater probability, we reply that this ought to impose upon them a stronger sense of duty in regard to getting at the truth. The state of Opinion stands to that of Knowledge in the same relation as that of sickness to health (p. 1008, b. 12-31).

Finally, to follow up this last argument, even if we grant to these theorists that both members of the Antiphasis are true, still there are degrees of truth: the More and the Less pervades the constitution of nature (p. 1008, b. 32). We shall not surely affirm that two and three are equally even; nor shall we say, when any one affirms four to be five, that he commits an equal error with one who affirms four to be a thousand. Clearly one of these persons is more near to the truth, the other is less near to the truth. But, if there be such a thing as *being nearer to the truth*, there must surely be some truth to which you have come nearer; and, even if this be denied, yet at least what we have already obtained (the *ἐγγύτερον τῆς ἀληθείας*) is something firmer and of a more truth-like character. We shall thus have got rid of that unqualified theory which forbids all definite conceptions of the intellect (*κἂν εἰ μή ἐστιν, ἀλλ' ἤδη γέ τι ἐστὶ βεβαιότερον καὶ ἀληθινώτερον, καὶ τοῦ λόγου ἀπηλλαγμένοι ἂν εἴημεν τοῦ ἀκράτου καὶ κωλύοντός τι τῇ διανοίᾳ ὁρίσαι*—p. 1009, a. 2),

Having thus completed his refutation of the "unqualified theory," which declares both members of the Antiphasis to be alike true, Aristotle passes to the examination of the Protagorean doctrine "Homo Mensura:" he affirms that it proceeds from the same mode of thinking, and that the two must stand or fall together. For, if all things which appear true are true, all things must be at once true and false; since the opposition of men's opinions is a notorious fact, each

man thinking his own opinions true and his opponent's opinions false (p. 1009, a. 16).

Aristotle here distinguishes between two classes of reasoners, both of whom he combats, but who require to be dealt with in a very different manner: (1) Those who are sincerely convinced of what they affirm; (2) Those who have no sincere conviction, but merely take up the thesis as a matter for ingenious argument (λόγου χάριν), and will not relinquish it until they are compelled by a strong case made out against them. The first require persuasion, for their ignorance may be easily cured, and the difficulties whereby they are puzzled may be removed; the second require to be constrained by a forcible Elenchus or refutation, which may correct their misuse of dialectic and language (p. 1009, a. 22).

Aristotle begins with the first class. The difficulties which perplex them proceed from sensible things (ἐκ τῶν αἰσθητῶν—p. 1009, a. 23). They perceive contrary things generated by the same; and this leads them to believe that contraries are both alike real, and that the two members of the Antiphasis are alike true. For, since Non-Ens cannot be generated, both the two contraries must have pre-existed together as Entia, prior to the generation in the thing as it then stood (a. 25). This is the opinion of Anaxagoras, who affirms that everything is mixed in everything; and of Demokritus, who affirms that Plenum and Inane—in other words, Ens and Non-Ens—exist alike and together in every part (a. 28). To these reasoners we reply, that in a certain sense they are right, in a certain sense wrong. The term Ens is used in two senses: the same thing may therefore be at once Ens and Non-Ens, but not in the same sense; moreover, from Non-Ens in one sense something may be generated, but not from Non-Ens in the other. The same thing may be at once two opposites *in power*, but not *in act* (δυνάμει μὲν γὰρ ἐνδέχεται ἅμα ταὐτὸ εἶναι τὰ ἐναντία, ἐντελεχείᾳ δ' οὔ—a. 35). We must farther remind these reasoners that the basis on which they proceed is not universally admissible; for there are various Entia of completely distinct and different essence, in which there is neither movement nor generation nor destruction of any sort (a. 38).

The doctrine held by Protagoras—That what appears true is truth, comes from the same source as the other doctrine—That both members of the Antiphasis are true. Both doctrines proceed from the sensible world (ὁμοίως δέ καὶ ἡ περὶ τὰ φαινόμενα ἀλήθεια ἐνίοις ἐκ τῶν αἰσθητῶν ἐλήλυθεν—p. 1009, b. 2; ὁμοίως refers back to a. 23—αὕτη ἡ δόξα, the other doctrine). Demokritus, Protagoras, and others observe that sensible phenomena are differently appreciated by different men, by other animals, and even by the same animal or man at different times. They do not think that truth upon these points of difference can be determined by a majority of voices. Demokritus says that either there is nothing true, or that we cannot know what it is (b. 10). These reasoners identified intelligence with sensible perception, and considered that this latter implied a change in the subject (b. 13): they conceived that what appeared to sense was necessarily true. Empedokles, Demokritus, Parmenides, Anaxagoras, Homer, &c., all lay down the doctrine, that the intelligence of men is varied with and determined by their sensible perceptions. They thought that men of wrong intelligence were nevertheless intelligent men, though their intelligence did not carry them to the same conclusions (b, 30); that if, both in one case and in the other, there were acts of intelligence, there must be realities corresponding to both, justifying the affirmative as well as the negative (b. 33).

That sincere and diligent enquirers should fall into these errors is very discouraging; but we must remark that their errors originated from this—that, while investigating the truth respecting Entia, they supposed that Entia were only the Percepta or Percipibilia (p. 1010, a 2). Now in these Entia Perceptionis there is a great deal of the Indefinite and of mere Potential Entity (a. 3). Hence the theories of these reasoners were plausible, though not true. They saw that all the Entia Perceptionis were in perpetual movement, and they thought it impossible to predicate any thing with truth respecting what was at all times and in every way changing (a. 9). Kratylus and the Herakleitizers pushed this to an extreme. Even against their reasoning, we have something to say in reply. We grant that they have some ground for imagining that what undergoes change does not exist at the moment when it changes (a. 16). Yet even here there is room for dispute; for that which is in the act of casting off, still retains something of that which is being cast off; and of that which is being generated, something must already be in existence. As a general doctrine, if something is in course of being destroyed, something must be in existence: and, if something is in course of being generated, there must exist something out of which it

proceeds and by which it is being generated; nor can this go back *ad infinitum* (a. 22). Dropping this argument, however, let us advance another. Change as to Quantity is not the same as change as to Quality or Form. Let us grant that, as to Quantity, there is change continuous and perpetual—growth or decay—no such thing as stationary condition. But all our knowledge relates to Quality or Form, in which there is no continuous change (a. 24: κατὰ μὲν οὖν τὸ ποσόν, ἔστω μὴ μένον· ἀλλὰ κατὰ τὸ εἶδος ἅπαντα γιγνώσκομεν.—Compare Alex. Schol., p. 671, b. 5-22; p. 670, a. 36: Bonitz has good remarks in his note, pp. 202-204).

Again, we have a farther reproach to make to these reasoners. Their argument is based only on the Percepta or Percipienda; yet, even as to these, it is true only as to the minority and untrue as to the majority. It is true merely as far as the sublunary Percepta; but as to the superlunary or celestial it is the reverse of truth. Our earth and its neighbourhood is indeed in continual generation and destruction; but this is an insignificant part of the whole. In affirming any thing respecting the whole, we ought to follow the majority rather than the minority (p. 1010, a. 28-31.)

Lastly, we must repeat against these reasoners the argument urged just now. We must explain to them, that there exists, apart from and besides all generation, destruction, change, motion, &c., a certain Immovable Nature (ἀκίνητός τις φύσις—a. 34). Indeed their own doctrine—That all things both are and are not—would seem to imply an universal stationary condition rather than universal change (a. 38). There can be no change; for there is no prospective terminus which can be reached by change. Every thing is assumed as already existing.

We have now to remark upon the special doctrine of Protagoras—πᾶν τὸ φαινόμενον ἀληθές. If we grant that perception is always true upon matters strictly belonging to it, still phantasy is not identical with perception, and we cannot say that what appears to the phantasy is always true (τὸ φαινόμενον—which implies a reference to φαντασία—p. 1010, b. 2). Besides, it is strange that thinkers should puzzle themselves about the questions: Whether the magnitude and colour of objects is that which appears to a spectator near or to a spectator far off? and to a spectator healthy or jaundiced? Whether the weight of an object is as it appears to a weak or to a strong man? Whether objects are truly what they appear to men awake or to men asleep? Their own actions show that they do not think there is any doubt; for if, being in Libya, they happen to dream that they are in Athens, none of them ever think of going to the Odeium (b. 5-11). Moreover, respecting the future, as Plato remarks, the anticipations of the ignorant man are not so trustworthy as those of the physician, whether a patient will recover or not (b. 14). Then, again, in respect of present sensations, the perception of sight is not equally trustworthy with the perception of smell about a question of odour (b. 17); and the perception of smell will never report at the same time and about the same thing, that it is at once fragrant and not fragrant; nor, indeed, at different times about the affection itself, but only about the subject to which the affection belonged (b. 20). The same wine which tasted sweet last month, may now taste not sweet; but the sweet taste itself is the same now and last month, and the reports of the sense are never contradictory on this point. The sweet taste which is to come in the future will be of necessity like the sweet taste in the past. Now such necessity is abrogated by all those reasonings which affirm at once the two members of the Antiphasis. These reasonings disallow all essence of every thing, and all necessity; for whatever is necessary, cannot be at once both thus and not thus (b. 21-30).

On the whole, if nothing exist except Percepta, nothing can exist without animated beings; since without these last there can be no perception. It is indeed true, perhaps, that under such a supposition there exist neither Percepta nor acts of Perception (which are affections of the Percipient); but that the Substrata which cause Perception should not exist even without Perception—is an impossibility (p. 1010, b. 33: τὸ δὲ τὰ ὑποκείμενα μὴ εἶναι, ἃ ποιεῖ τὴν αἴσθησιν, καὶ ἄνευ αἰσθήσεως, ἀδύνατον). Perception is not perception of itself; there exists besides, apart from perception, something else which must necessarily be prior to perception. For the Movens is by nature prior to the Motum; and this is not the less true, though each of these two is enunciated in relation to the other (b. 35).

A difficulty is often started, and enquiry made, Who is to be the judge of health and sickness? Whom are we to recognize as the person to judge rightly in each particular case? Persons might as well raise difficulty and make enquiry, Whether we are now awake or asleep? It is plain by men's actual conduct that they have no real doubt upon the point in any particular case; and both these

enquiries arise from the same fundamental mistake—that men require to have every thing demonstrated, and will recognize nothing without demonstration. (Alex. says in Scholia, p. 675, b. 3: ἔστι γὰρ πρὸς ἃ ἐκ φύσεως βέλτιον ἔχομεν ἢ ὥστε δεῖσθαι τῆς περὶ αὐτῶν ἀποδείξεως· ἔστι δὲ ταῦτα αἵ τε αἰσθήσεις, καὶ τὰ ἀξιώματα καὶ αἱ φυσικαί τε καὶ κοιναὶ ἔννοιαι.) Those who sincerely and seriously feel this difficulty, may be expected to acquiesce in the explanation here given (p. 1011, a. 2-14). But those who put forward the difficulty merely for the sake of argument, must be informed that they require an impossibility. They require to have a refutative case made out against them (which can only be done by reducing them to a συλλογισμὸς ἀντιφάσεως); yet they themselves begin by refusing to acknowledge this refutation as sufficient, for they maintain the thesis—That both members of the Antiphasis are alike and equally true (a. 16; compare Alex. Schol., p. 675, b. 20-28).

Those who maintain this last-mentioned thesis say, in other words, That every thing which appears true, is true. But this thesis of theirs cannot be defended except by the admission that every thing is relative, and that nothing is absolute. Accordingly they must take care to announce their thesis, not in absolute terms as it now stands, but in terms strictly relative: Every thing which appears true, appears true to some individual—at a certain moment of time—under certain circumstances and conditions (p. 1011, a. 24). For, if they affirm, in absolute phrase, that all things are alike false and true, on the ground that what appears true is true, urging that the same things do not appear true either to different persons, or to the same person at different times—nay, sometimes even to the same person at the same time, as may be seen by handling a pebble between two crossed fingers (ἐν τῇ ἐπαλλάξει τῶν δακτύλων—a. 33), so that it appears two to the touch, but only one to the sight;—we shall reply, that there is no such contradiction of judgment, if they confine themselves to the same person, the same time, and one and the same sense. In these cases, there is only one affirmation which appears to be true, and therefore, according to their theory, that affirmation is true. They are not, therefore, justified in concluding that every thing is alike true and false (b. 1).

They can only escape this refutation by avoiding to say, This is true, and by saying, This is true to such an individual, at such a time, &c.; that is, by making every affirmation relative to some person's opinion or perception. Hence the inference is, that nothing either ever has occurred or ever will occur, without the antecedent opinion of some person (μηθενὸς προδοξάσαντος—p. 1011, b. 6): if any thing ever has so occurred, it cannot be true that all things are relative to opinion. Moreover, if the Relatum be one, it must be relative to some one, some definite, Correlate; and, even if the same Relatum be both half and equal, it will not be equal in reference to a double Correlate, but half in reference to a double, and equal in reference to an equal (b. 9). Moreover, if *homo* and *conceptum* have both of them no more than a relative existence—that is, if both of them exist only in correlation with a *concipiens*—then the *concipiens* cannot be *homo*; it will be the *conceptum* that is *homo*. And, if every individual thing have existence only in relation to a *concipiens*, this *concipiens* must form the Correlate to an infinite number of Relata (b. 12). (All this is very briefly and obscurely stated in Aristotle. The commentary of Alexander is copious and valuable: one might suppose that he had before him a more ample text; for it is difficult to find in the present text all that his commentary states).

Let thus much be said to establish the opinion, That the two members of the Antiphasis (the Affirmative and the Negative) are not both true at the same time. We have shown whence it arises that some persons suppose both to be true: and what are the consequences in which those who hold this opinion entangle themselves. Accordingly, since both sides of the Antiphasis cannot be truly predicated of the same subject, it is impossible that opposite attributes can belong at the same time to the same subject (p. 1011, b. 17: οὐδὲ τἀναντία ἅμα ὑπάρχειν ἐνδέχεται τῷ αὐτῷ). For one of these opposites includes in itself privation, and privation of a certain real essence; now privation is the negation of a certain definite genus. And, since affirmation and negation cannot be truly applied at the same time, it follows that opposite attributes cannot belong at the same time to the same subject. At least it is only possible thus far: one may belong to it absolutely, the other *secundum quid*; or both of them *secundum quid* only (τῶν μὲν γὰρ ἐναντίων θάτερον στέρησίς ἐστιν οὐχ ἧττον, οὐσίας δὲ στέρησις ἀπόφασίς ἐστιν ἀπό τινος ὡρισμένου γένους.—b. 20).

But, also, there can be nothing intermediate between the two members of the Antiphasis; we must of necessity either affirm or deny any one thing of any other

(p. 1011, b. 24). This will appear clearly, when we have first defined what is Truth and Falsehood. To say that Ens is not, or that Non-Ens is, is false: To say that Ens is, or that Non-Ens is not, is true. Accordingly, he who predicates *est*—or he who predicates *non est*—will speak truly or speak falsely, according as he applies his predicate to Ens or to Non-Ens. But he cannot, either in application to Ens or to Non-Ens, predicate *est aut non est* (b. 29). Such a predication would be neither true nor false, but improper and unmeaning. (I follow at b. 27 the text of the Berlin edition: *ὥστε καὶ ὁ λέγων εἶναι ἢ μὴ ἀληθεύσει ἢ ψεύσεται*—which seems to me here better than that of Bonitz, who puts *ὥστε καὶ ὁ λέγων τοῦτο εἶναι ἢ μὴ ἀληθεύσει ἢ ψεύσεται*—following Alexander's explanation, Schol., p. 680, a. 33, which I cannot think to be correct, though Bonitz praises it much. Aristotle defines Truth and Falsehood: When you say *Ens est*, or *Non-Ens non est*, you speak truth; when you say *Ens non est*, or *Non-Ens est*, you speak falsehood. Accordingly, when you employ the predicate *est*, or when you employ the predicate *non est*, you will speak truly or falsehood, according as to the subject with which you join it is Ens or is Non-Ens. But neither with respect to the subject Ens nor with respect to the subject Non-Ens, can you employ the disjunctive predicate—*est aut non est*.

Again, a medium between the two horns of the Antiphasis must be either a medium between opposites, like grey between white and black, or like the *neither* between man and horse. If it be the latter, it will never change; for all change is either from a negative to its affirmative (*non-bonum* to *bonum*) or *vice versâ;* now that which is both *non-homo* and *non-equus* must change, if it change at all, into that which is both *homo* and *equus;* but this is impossible. We see change always going on; but it is always change either into one of the two extremes or into the medium between them. But can we assume that there is such a medium (so that the case supposed will belong to the analogy of grey, halfway between white and black)? No, we cannot assume it; for, if we granted it, we should be forced to admit that there was change into white not proceeding from that which is not white: now nothing of the kind is ever perceived. There cannot therefore be any admissible medium halfway between the two members of the Antiphasis—something which is neither white nor not-white, neither black nor not-black (p. 1011, b 35: *εἰ δ' ἔστι μεταξύ*—if such medium be admitted —*καὶ οὕτως εἴη ἄν τις εἰς λευκὸν οὐκ ἐκ μὴ λευκοῦ γένεσις· νῦν δ' οὐχ ὁρᾶται*).

Furthermore, whatever our intelligence understands or reasons upon, it deals with as matter affirmed or denied. The very definition of truth and falsehood recognizes them as belonging only to affirmation or negation: when we affirm or deny in a certain way, we speak truth; when in another way, we speak falsely. Nothing is concerned but affirmation and denial (*i.e.*, there is no mental operation midway between the two—p. 1012, a. 2-5). If there be any such medium or midway process, it is not confined to this or that particular Antiphasis, but belongs alike to all, and must lie apart from all the different Antiphases—at least if it is to be talked of as a reality, and not as a mere possible combination of words; so that the speaker will neither speak truth, nor not speak truth; which is absurd (a. 7). It must also lie apart both from Ens and from Non-Ens; so that we should be compelled to admit a certain mode of change of Essence, which yet shall neither be generation nor destruction; which is impossible. According to Aristotle's definition, all change of *οὐσία* must be either Generation, *i.e.*, passage from *τὸ μὴ ὄν* to *τὸ ὄν*, or Destruction, *i.e.*, passage from *τὸ ὄν* to *τὸ μὴ ὄν*.—See Alex. Schol. p. 681, b. 30-40).

Again, there are certain genera in which negation carries with it the affirmation of an opposite; such as odd and even, in numbers. In such genera, if we are to admit any medium apart from and between the two members of the Antiphasis, we should be forced to admit some number which is neither odd nor even (p. 1012, a. 11). This is impossible: the definition excludes it. (Alexander gives this as the definition of number: *πᾶς γὰρ ἀριθμὸς ἢ ἄρτιός ἐστιν ἢ περιττός, καὶ ἀριθμός ἐστιν ὃς ἢ ἄρτιός ἐστιν ἢ περιττός*—Schol. p. 682, a. 16.)

Again, if the Antiphasis could be divided, and a half or intermediate position found, as this theory contends, the division of it must be admissible farther and farther, *ad infinitum*. After bisecting the Antiphasis, you can proceed to bisect each of the sections; and so on. Each section will afford an intermediate term which may be denied with reference to each of the two members of the original Antiphasis. Two new Antiphases will thus be formed, each of which may be bisected in the same manner; and so bisection, with the formation of successive new Antiphases, may proceed without end (p. 1012, a. 13).

Again, suppose a questioner to ask you, Is this subject white? You answer, No. Now you have denied nothing else than the being-white: this is the *ἀπόφασις*, or negative member of the Antiphasis. But you have neither denied nor affirmed the intermediate stage between the affirmative and the negative; nor is there any answer possible by which you could do so. Therefore there is no real intermediate stage between them (*ἔτι ὅταν ἐρομένου εἰ λευκόν ἐστιν εἴπῃ ὅτι οὔ, οὐθὲν ἄγγο ἀποπέφηκεν ἢ τὸ εἶναι· ἀπόφασις δὲ τὸ μὴ εἶναι*—p. 1012, a. 15; see Alex. Schol. p. 682, b. 15-38, and Bonitz's note. Bonitz suggests, though timidly, *ἀποπέφηκεν* instead of the common reading *ἀποπέφυκεν*, which none of the commentators explain, and which seems unintelligible. I think Bonitz is right, though *ἀποπέφηκεν* is an unknown tense from *ἀπόφημι*: it is quite as regular as *ἀποφήσω* or *ἀπέφησα*).

The doctrines which we have been just controverting (Aristotle says) arise, like other paradoxes, either from the embarrassment in which men find themselves when they cannot solve a sophistical difficulty; or from their fancying that an explanation may be demanded of every thing. In replying to them, you must take your start from the definition, which assigns to each word one fixed and constant signification. The doctrine of Herakleitus—That all things are and all things are not—makes all propositions true; that of Anaxagoras—That every thing is intermingled with every thing—makes all propositions false: such mixture is neither good, nor not good; neither of the members of the Antiphasis is true (a. 17-28). Our preceding reasonings have refuted both these doctrines, and have shown that neither of the two one-sided extremes can be universally true: neither the doctrine—Every proposition is true; nor that—Every proposition is false; still less that which comprehends them both—Every proposition is both true and false. Among these three doctrines, the second might seem the most plausible, yet it is inadmissible, like the other two (b. 4).

In debating with all these reasoners, you must require them (as we have already laid down), not to admit either existence or non-existence but, to admit a constant signification for each word. You must begin by defining truth and falsehood; each of them belongs only to affirmation in a certain way. Where the affirmation is true the denial is false; all propositions cannot be false; one member of each Antiphasis must be true, and the other member must be false. Each of these doctrines labours under the often-exposed defect—that it destroys itself (p. 1012, b. 14, *τὸ θρυλλούμενον*—allusion to the Theætetus, according to Alexander). For whoever declares all propositions to be true, declares the contradictory of this declaration to be true as well as the rest, and therefore his own declaration not to be true. Whoever declares all propositions to be false, declares his own declaration to be false as well as all other propositions (b. 17). And, even if we suppose each of these persons to make a special exception in regard to the particular propositions here respectively indicated, still this will not serve. The man who declares all propositions to be false, will be compelled to admit an infinite number of true propositions; because the proposition declaring the true proposition to be true, must itself be true: a second proposition declaring this last to be true, will itself be true; and so on to a third, a fourth, &c., in endless scale of ascent. The like may be said about the man who declares all propositions to be true; he too will be obliged to admit an infinite number of false propositions; for that which declares a true proposition to be false, must itself be false; and so on through a second, a third, &c., in endless scale of ascent as in the former case (b. 22).

It follows from what has been just proved, that those who affirm every thing to be at rest, and those who affirm every thing to be in motion, are both alike wrong. For, if every thing were at rest, the same propositions would be always true and always false. But this is plainly contrary to evidence; for the very reasoner who affirms it was once non-existent, and will again be non-existent. On the other hand, if every thing were in motion, no proposition would be true, and all would be false: but we have proved above that this is not so. Nor is it true that all things are alternately in motion or at rest; for there must be something ever-moving and other things ever-moved—and this prime movent must be itself immovable (p. 1012, b. 22-30).

Book E.

The First Philosophy investigates the causes and principles of Entia *quatenus* Entia (p. 1025, b. 3). It is distinguished from other sciences, by applying to all Entia, and in so far as they are Entia; for each of the other sciences applies

itself to some separate branch of Entia, and investigates the causes and principles of that branch exclusively. Each assumes either from data of perception, or avowedly by way of hypothesis, the portion or genus of Entia to which it applies; not investigating the entity thereof, but pre-supposing this process to have been already performed by Ontology: each then investigates the properties belonging *per se* to that genus (b. 13). It is plain that by such an induction not one of these sciences can demonstrate either the essence of its own separate genus, nor whether that genus has any real existence. Both these questions—both εἰ ἔστιν and τί ἐστιν—belong to Ontology (b. 18). (The belief derived from perception and induction never amounts to demonstration, as has been shown in the Analytica; you may always contest the universality of the conclusion.—Alex. p. 734, b. 16, Br.)

Apart from Ontology, each of these separate sciences is either theoretical, or practical, or constructive (p. 1025, b. 21). Two of the separate sciences are theoretical—Physics and Mathematics; and, as Ontology (or Theology) is also theoretical, there are three varieties of theoretical science (p. 1026, a. 18).

Physical Science applies to subjects having in themselves the principle of mobility or change, and investigates, principally and for the most part, the Essence or Form thereof; yet not exclusively the Form, for the Form must always be joined with Matter. The subject of Physics includes Matter in its definition, like hollow-nosed, not like hollow (p. 1025, b. 33). All the animal and vegetable world is comprised therein; and even some soul, as far as soul is inseparable from Matter (περὶ ψυχῆς τινίας θεωρῆσαι τοῦ φυσικοῦ, ὅση μὴ ἄνευ τῆς ὕλης ἐστίν—p. 1026, a. 5).

Mathematics is another branch of theoretical science; applying to subjects immovable and in part inseparable from Matter; that is, separable from Matter only in logical conception (p. 1026, a. 7-15).

Theology, or First Philosophy, or Ontology, is conversant with subjects self-existent, immovable, and separable from Matter (p. 1026, a. 16).

Now all causes are necessarily eternal; but these more than any other, because they are the causes active among the visible divine bodies; for, clearly, if the Divinity has any place, it must be found among subjects of that nature; and the most venerable science must deal with the most venerable subjects (p. 1026, a. 19). The theoretical sciences are more worthy than the rest (αἱρετώτεραι), and First Philosophy is the most worthy among the theoretical sciences (a. 22). A man may indeed doubt whether First Philosophy is distinguished from the other theoretical sciences by being more universal, and by comprehending them all as branches; or whether it has a separate department of its own, but more venerable than the others; as we see that Mathematics, as a whole, comprehends Geometry and Astronomy (a. 27). If there exist no other distinct Essence beyond the compounds of Nature (παρὰ τὰς φύσει συνεστηκυίας—a. 28), Physics would be the first of all sciences. But if there be a distinct immovable Essence, that is first; accordingly the science which deals with it is first, and, as being first, is for that reason universal (καὶ καθόλου οὕτως ὅτι πρώτη—a. 30). It is the province of this First Philosophy to theorize respecting Ens *quâ* Ens—what it is and what are its properties *quâ* Ens (a. 32). (Alexander says the First Philosophy is more universal than the rest, but does not comprehend the rest: πρώτη πάντων καὶ καθόλου ὡς πρὸς τὰς ἄλλας, οὐ περιέχουσα ἐκείνας, ἀλλ' ὡς πρώτη—Schol. p. 736, a. 27.)

Now Ens has many different meanings:—

1. Ens κατὰ συμβεβηκός.
2. Ens ὡς ἀληθές—Non-Ens ὡς ψεῦδος.
3. Ens κατὰ τὰ σχήματα τῆς κατηγορίας (decuple).
4. Ens δυνάμει καὶ ἐνεργείᾳ.

1. Respecting the first, there can be no philosophical speculation (p. 1026, b. 3). No science, either theoretical, or practical, or constructive, investigates Accidents. He who constructs a house, does not construct all the accidents or concomitants of the house; for these are endless and indeterminate. It may be agreeable to one man, hurtful to a second, profitable to a third, and something different in relation to every different Ens; but the constructive art called house-building is not constructive of any one among these concomitants (b. 7-10). Nor does the geometer investigate the analogous concomitants belonging to his figures; it is no part of his province to determine whether a triangle is different from a triangle having two right angles (b. 12). This is easy to understand: the Concomitant is little more than a name—as it were, a name and nothing beyond (b. 13). Plato came near the truth when he declared that Sophistic was busied about Non-Ens; for the debates of the Sophists turn principally upon Accidents or Concomitants, such as, Whether musical and literary be the same or different?

Whether Koriskus or literary Koriskus, be the same or different? Whether everything which now is, but has not always been, has become; as in the case of a man who being musical has become literary or being literary has become musical? and such like debates (see Alexander, Schol, p. 736, b. 40). For the Concomitant or Accident appears something next door to Non-Ens (ἐγγύς τι τοῦ μὴ ὄντος, p. 1026, b. 21), as we may see by these debates. Of other Entia there is generation or destruction, but of Accidents there is none (b. 23).

Nevertheless, we shall state, as far as the case admits, what is the nature of the Accident, and through what cause it is (τίς ἡ φύσις αὐτοῦ, καὶ διὰ τίν' αἰτίαν ἐστίν—p. 1026, b. 25): we shall perhaps at the same time explain why there can be no science respecting it. Among Entia, some are always and necessarily the same, others are usually but not always the same. These which come to pass in neither of these two ways, are called Accidents or Concomitants. Of the first two, the Constant and the Usual, there is always some definite cause; of the third, or Accidents, there is none: the cause of these is an Accident (p. 1027, a. 8). In fact, Matter is the cause of Accidents, admitting as it does of being modified in a way different from the usual and ordinary way (a. 13). It is plain that there can be neither science nor teaching of Accidents: the teacher can teach only what is constant or usual, and nothing beyond (a. 20).

Now of these Accidents, there is a certain principle or cause which it is indispensable to admit—Chance (ἡ τοῦ ὁπότερ' ἔτυχεν—p. 1027, b. 12). There must be principles and causes, generable and destructible, yet which never are either generated or destroyed; if this were not so, all events would occur by necessity (p. 1026, b. 29-31). (Thus the builder, considered as cause of the house which he builds, has been generated, *i.e.*, he has acquired the art of building and the proper accessories; and he will be destroyed, *i.e.*, he will lose his art, and its conditions of being exercised. But, considered as the cause of the accidents belonging to the house, of its being annoying or inconvenient to A or B, he has not been generated nor will he be destroyed; *i.e.*, he has neither acquired, nor will he lose, any skill or conditions tending to the production of this effect. As the contact of two substances is not generated, but appears of itself along with the substances when they are generated; as the limits of periods of time appear without generation along with the periods of time themselves; so the builder, when he acquires the power of building the house, stands possessed thereby, without any additional time or special generation, of the power to produce the concomitant accidents of the house. The house is thus produced by necessity; its concomitant accidents not by necessity—Alex. Schol. p. 738, a. 19-33.)

But whether this τὸ ὁπότερ' ἔτυχεν is to be considered as referable to Matter, End, or Movent, is a point important to be determined (p. 1027, b. 15). Aristotle shows elsewhere that it is referable to the last of the three—τὸ ποιητικόν (Asklepius, p. 738, b. 41).

Having now said enough upon Ens *per Accidens*, we proceed to touch upon the second variety of Ens—Ens as the True, Non-Ens as the False.

This variety of Ens depends upon conjunction and disjunction, and forms an aggregate of two portions separately exhibited and brought together in the Antiphasis. Such conjunction and disjunction is not in things themselves; but in the act of intelligence which thinks the two things together and not successively: in regard to simple matters and Essence, not even any special conjoining act of intelligence is required; such things must be conceived together, or not conceived at all (p. 1027, b. 27). The mental act of apprehension, in these cases, is one and indivisible: you either have it entire at once, or not at all.

The cause of this variety of Ens is to be found in a certain affection of the intelligence; that of the preceding variety of Ens is an undefined or indeterminate cause (b. 34). Both these two varieties of Ens are peculiar, standing apart from what is most properly and *par excellence* Ens, *i.e.*, from the Ens according to the ten Categories, on which we shall now say something.

Book Z.

We have already stated that Ens is a πολλαχῶς λεγόμενον — distinguished according to the ten figures or genera called Categories. The first is τί ἐστιν, or οὐσία (*sensu dignissimo*)—Essentia, Substantia (p. 1028, a. 15). The remaining Categories are all appendages of Essentia, presupposing it, and inseparable from it; whereas Essentia is separable from all of them, and stands first in reason, in cognition, and in time. All the other Categories are called Entia, only because they are quantities, qualities, affections, etc., of this Essentia Prima. A man

may even doubt whether they are Entia or Non-Entia, since none of them is either *per se* or separable. We ought hardly to say that a quality or an affection, enunciated abstractedly, is Ens at all—such as *currere, sedere, sanitas:* we ought more properly to say that *currens equus, sedens homo, sanus miles*, are Entia, enunciating along with the quality the definite Essence or Individual Substance to which it belongs (a. 24). The quality then becomes Ens, because the subject to which it belongs is an individual Ens (a. 27). Essentia Prima is first in reason or rational explanation (λόγῳ, a. 34), because in the rational explanation of each of the rest that of Essentia is implicated. It is first also in cognition, because we believe ourselves to know any thing fully, when we are able to answer *Quid est?* and say that it is *homo* or *ignis;* not simply when we are able to answer *Quale* or *Quantum est?* So that in answering the great and often-considered question, *Quid est Ens?* we shall first understand it as meaning Essentia (*hoc sensu dignissimo*), and shall try to solve it so (b. 3, περὶ τοῦ οὕτως ὄντος).

Essentia (understood in this sense) appears to belong in the most manifest manner to bodies: we predicate it of animals, plants, the parts thereof, the natural bodies such as fire, water, and such like, as well as the parts and aggregates thereof, such as the heaven and its parts, the stars, moon, and sun (p. 1028, b. 7-13). But are these the only Essences, or are there others besides? Or again, is it an error to call *these* Essences, and are all Essences really something different from these? This is a point to be examined. Some think that the limits of bodies (surface, line, point, monad) are Essences even more than the body and the solid; others admit no Essences at all beyond or apart from Percipienda; others again recognize other Essences distinct from and more eternal than the Percipienda; for example, Plato, who ranks Ideas or Forms, and the Mathematica, as two distinct Essences, while he places the Percipienda only third in the scale of Essence. Speusippus even enumerates a still greater number of Essences, beginning with the One, and proceeding to Numbers, Magnitudes, Soul, etc., with a distinct ἀρχή or principle for each (b. 21). Some others hold that Forms and Numbers have the same nature, and that there are other things coming near to these, such as lines and surfaces, in a descending scale to the Heaven and the Percipienda (b. 24). We must thus investigate which of these doctrines are true or false, whether there are any Essences beyond the Percipienda; and, if so, how they exist: whether there is any separable essence apart from Percipienda, and, if so, how and why; or whether there is nothing of the kind. But first we must give a vague outline what Essence is generally (ὑποτυπωσαμένοις, b. 31).

There are four principal varieties of meaning in this Essentia, κυρίως or *sensu dignissimo:* (1) τὸ τί ἦν εἶναι, (2) τὸ καθόλου, (3) τὸ γένος, (4) τὸ ὑποκείμενον.

We shall first speak about the fourth —Substratum—which is the subject of all predicates, but never itself the predicate of any subject. That which appears most of all to be Essentia is, τὸ ὑποκείμενον πρῶτον. This name applies, in one point of view, to Matter; in another, to Form; in a third, to the total result of the two implicated together (p. 1029, a, 1): *e.g.*, the brass, the figure, and the complete statue of figured brass. If, therefore, the Form be *prius*, and more Ens, as compared with the Matter, it will be also *prius* and more Ens as compared with the complete result. We get thus far in the adumbration of Essentia—that it is the subject of all predicates, but never itself a predicate.

But this is not sufficient to define it: there still remains obscurity. It would seem that Matter is Essentia; and that, if it be not so, nothing else is discernible to be so; for, if every thing else be subtracted, nothing (save Matter) remains. All things else are either affections, or agencies, or powers, of bodies; and, while length, breadth, depth, etc., are quantities belonging to Essence, Quantity is not Essence, but something belonging to Essence as First Subject. Take away length, breadth, depth, and there will remain only that something which these three circumscribe; in other words, Matter—that which, in itself and in its own nature, is neither Quantity, nor Quality, but of which, Quantity, Quality, and the other Categories, are predicated. All these Categories are predicated of Essence, and Essence of Matter; so that Matter is the last remaining *per se* (p. 1029, a. 12-24). Take away Matter, and there remain neither affirmative nor negative predicates; for these negative predicates are just as much concomitants or accidents as the others (a. 25).

Upon this reasoning, it seems that Matter is the true Essence. Yet, on the other hand, this will be seen to be impossible. For the principal characteristic of Essence is to be separable and Hoc Aliquid. So that either Form, or the compound of Form and Matter together, must be the true Essence.

But this last, the Compound, may be dismissed as evidently unsuitable for the enquiry, not less than Matter separately; for it is manifestly posterior to either of the two components (p. 1029, a. 30). We must therefore investigate the Form, though it is full of difficulty (a. 33).

We shall begin the investigation from some of the Percipienda, which are acknowledged as Essence; for it is useful to go across from this starting-point to what is more cognizable (πρὸ ἔργου γὰρ τὸ μεταβαίνειν εἰς τὸ γνωριμώτερον—p. 1029, b. 3. These words ought properly to come immediately after ζητητέον πρῶτον—p. 1028, a. 35, and the intervening words now standing in the text, ἐπεὶ δ' ἐν ἀρχῇ—περὶ αὐτοῦ, ought to be transferred to a more proper place some lines lower down, immediately before the words, καὶ πρῶτον εἴπωμεν—p. 1029, b. 12. Bonitz has made this very just correction in his Observatt. pp. 129-130, referred to in his Notes on the Metaphysica). Every man learns in this way—by proceeding from what is less cognizable by nature to what is more cognizable by nature. And the business (ἔργον) of learning consists in making what is most cognizable to nature, most cognizable to ourselves also; just as, in practical matters, proceeding from what is good for each, to make what is good by nature good also for each man's self. For it will often happen that things first and most cognizable to each man's self, are only faintly cognizable, and have little or nothing of Ens (b. 9). Yet still, we must try to become cognizant of things fully knowable, by beginning with things poorly knowable, but knowable to us (b. 12).

Taking up these Percipienda, for the purpose of searching for Essentia in them, we shall first advert to τί ἦν εἶναι, which we discriminated as one of the characteristics of Essentia, saying something about the rational explanation or definition of it (p. 1029, a. 12). The τ.η.ε. of each subject is what is affirmed of it *per se* (ἔστι τὸ τ.η.ε. ἑκάστῳ ὃ λέγεται καθ' αὑτό—a. 13). Your essence is not to be musical; you are not musical by yourself; your essence is, what you are *by yourself*. Nor does it even include all that you are by yourself. Surface is not included in the essence of white; for the essence of surface is not the same thing as the essence of white. Moreover white surface, the compound of both, is not the essence of white; because white itself is included in the definition of white—which cannot be tolerated. The definition, which explains τ.η.ε., must not include the very word of which you intend to declare the τ.η.ε. If you intend to declare the τ.η.ε. of white surface by the words smooth surface, this does not declare it all: you only declare that white is identical in meaning with smooth (b. 22).

Now, since there are compounds in every one of the Categories, we must enquire whether there is a τ.η.ε. belonging to each of these. Is there, for example, a τ.η.ε. for white man? Let the meaning of these two words be included in the single word garment. Is there a τ.η.ε. for garment? What is it to be a garment? You cannot answer; for neither is this an enunciation *per se* (p. 1029, b. 29). Are we to say, indeed, that there are two distinct sorts of enunciation *per se*: one including an addition (ἐκ προσθέσεως), the other, not? You may define by intimating something to which the matter defined belongs; *e.g.*, in defining white you may give the definition of white man. Or you may define by intimating something which is not essential but accessory to the matter defined; *e.g.*, garment signifying white man, you may define garment as white. Whereas the truth is, that, though a white man is white, yet to be white is accessory and not essential to him (p. 1030, a. 1).

But can we in any way affirm that there is any τ.η.ε. to garment (taken in the above sense)? Or ought we to say that there is none (p. 1030, a. 2; Bonitz. Obss. p. 120)? For the τ.η.ε. is of the nature of τόδε τι (ὅπερ γάρ τόδε τι ἔστι τὸ τ.η.ε.—a. 3), or Hoc Aliquid, *i.e.*, a particular concrete; but, when one thing is affirmed of another, as when we say white man, this is not of the nature of τόδε τι, if τόδε τι belongs to Essences alone (a. 5). Thus it appears that τόδε τι belongs to all those matters of which the rational explanation can be given by Definition. For to give the equivalent of a name in many other words is not always to give a definition: if this were so, a paraphrase of any length, even the Iliad, might be called a definition. There can be no definition except of a primary something; which is affirmed, without being affirmed as something about another (a. 10). There will be no τ.η.ε., therefore, except for species of a genus; for in these alone what is affirmed is not an affection or an accessory or by way of participation. Respecting every thing besides, there will be no τ.η.ε. or definition, but there may be a rational explanation (λόγος) of what the name signifies, or a more precise explanation substituted in place of a simpler (a. 16).

Yet have we not gone too far in restricting the applicability of τ.η.ε. and Defini-

tion? and ought we not rather to say, that both the one and the other are used in many different senses (p. 1030, a. 18)? For the *Quid est* (τὸ τί ἐστιν) signifies in one way Essence and Hoc Aliquid, and in different ways all the other Categories each respectively. To all of them *Est* belongs, though not in like manner, but primarily to one and consequentially to the rest; so also *Quid est* belongs simply and directly to Essence, but in a certain way to the others (a. 21). Respecting Quale, Quantum, and the rest, we may enquire *Quid Est?* so that Quale also comes under the *Quid est*, though not absolutely or directly (οὐχ ἁπλῶς, a. 25), but analogously to Non-Ens; for some assert in words that *Est* belongs to Non-Ens also though not absolutely, viz., Non Ens *est* Non-Ens—(a. 26).

Now we ought to be careful how we express ourselves about any particular matter, but we ought not to be less careful to determine how the matter itself really stands (p. 1030, a. 27: δεῖ μὲν οὖν σκοπεῖν καὶ τὸ πῶς δεῖ λέγειν περὶ ἕκαστον, οὐ μὴν μᾶλλόν γε ἢ τὸ πῶς ἔχει. This contrast of πῶς δεῖ λέγειν with πῶς ἔχει appears to refer to what had been said two lines before: λογικῶς φασί τινες εἶναι τὸ μὴ ὄν—verbal propositions distinguished from real.). The phraseology used just before is clear, and we must therefore recognize that τ.η.ε., as well as τί ἐστι, belongs absolutely and primarily to Essentia, but in a secondary way to the other Categories; that is not absolutely, but ποιῷ τ.η.ε., πόσῳ τ.η.ε., &c. (a. 31). For we must either declare the Categories to be simply *æquivoca*, or we must recognize this addition and subtraction of the separate title of each, like the non-cognizable cognizable (ὥσπερ καὶ τὸ μὴ ἐπιστητὸν ἐπιστητόν—a. 33. I do not understand these words, nor does the Scholiast or Bonitz explain them satisfactorily.). But the truth is, that they are neither *æquivoca* nor *univoca*, but in an intermediate grade of relation—not καθ' ἕν, but πρὸς ἕν (b. 3). People may express this in what phrases they like; but the truth is, that there is both τ.η.ε. and Definition, directly and primarily, of Essence; and of the other Categories also, but not directly and primarily. Of white man, you may give a rational explanation and a definition; but it will apply in a different manner to white and to the essence of man (b. 12).

There is a farther difficulty to be noticed. How are you to define any matter not simple but essentially compound, where two or more elements coalesce into an indivisible whole, like hollow-nosedness out of nose and hollowness? Here we have hollow-nosedness and hollowness belonging to the nose *per se*, not as an affection or accessory; not as white belongs to Kallias or man, but as male belongs to animal, or equal to quantity, *i.e.*, *per se* (p. 1030, b. 20). The subject is implicated with the predicate in one name, and you cannot enunciate the one apart from the other. Such predicates belong to their subject *per se*, but in a different sense (see Bonitz's note). You cannot properly define them, in the sense given above (b. 27). If definitions of such are to be admitted, it must be in a different sense: Definition and τ.η.ε. being recognized both of them as πολλαχῶς λεγόμενα. Definition therefore is the mode of explanation which declares the τ.η.ε., and belongs to Essences, either exclusively, or at least primarily, directly, and chiefly (p. 1031, a. 7-14).

We have now to enquire—Whether each particular thing, and its τ.η.ε., are the same, or different (p. 1031, a. 15). This will assist us in the investigation of Essence; for apparently each thing is not different from its own Essence, and the τ.η.ε. is said to be the Essence of each thing.

In regard to subjects enunciated *per accidens*, the above two would seem to be distinct. White man is different from the being a white man. If these two were the same, the being a man would be the same as the being a white man: for those who hold this opinion affirm that man, and white man, are the same; and, if this be so, of course the being a man must also be the same as the being a white man. Yet this last inference is not necessary; for *same* is used in a different sense, when you say, Man and white man are the same, and when you say, The being a man and the being a white man are the same. But perhaps you may urge that the two predicates may become the same *per accidens* (*i.e.*, by being truly predicated of the same subject); and that, because you say truly, Sokrates is white—Sokrates is musical, therefore you may also say truly, The being white is the same as the being musical. But this will be denied (δοκεῖ δ' οὔ—p. 1031, a. 28).

In regard to subjects enunciated *per se*, the case is otherwise: here each thing is the same with its τ.η.ε. Suppose, *e.g.*, there exist any Essentiæ (such as Plato and others make the Ideas) prior to all others; in that case, if the αὐτοαγαθόν were distinct from τὸ ἀγαθῷ εἶναι, and the αὐτοζῷον distinct from τὸ ζῴῳ εἶναι, there must be other Essences and Ideas anterior to the Platonic Ideas. If we believe τ.η.ε. to be Essentia, it must be an Essentia anterior and superior in dignity to these

Ideas of Plato. Moreover, if the Essentiæ or Ideas, and the τ.η.ε., be disjoined (ἀπολελυμέναι—p. 1031, b. 3), the first will be uncognizable, and the last will be non-existent (τὰ δ' οὐκ ἔσται ὄντα—b. 4). For to have cognition of a thing, is, to know its τ.η.ε. This will be alike true of all τ.η.ε.; all of them are alike existent or alike non-existent (b. 9). If τὸ ὄντι εἶναι be not identical with τὸ ὄν, neither is τὸ ἀγαθῷ εἶναι identical with τὸ ἀγαθόν, &c. But that of which τὸ ἀγαθῷ εἶναι is not truly predicable, is not ἀγαθόν (b. 11).

Hence we see that of necessity τὸ ἀγαθόν is one and the same with τὸ ἀγαθῷ εἶναι; likewise τὸ καλόν, with τὸ καλῷ εἶναι; and so in all cases where the term enunciates a subject primarily and *per se*, not a predicate of some other and distinct subject (p. 1031, b. 13: ὅσα μὴ κατ' ἄλλο λέγηται, ἀλλὰ καθ' αὑτὰ καὶ πρῶτα). This last is the characteristic and sufficient mark, even if the Platonic Ideas be not admitted; and even more evidently so, if they be admitted (b. 14). It is at the same time clear that, if the Ideas be what Plato declares them to be, the individual perceivable subjects here cannot be Essences; for the Ideas are necessarily Essences, but not as predicable of a subject. If they were Essences, in this last sense, they would be Essences *per participationem;* which is inconsistent with what is said about them by Plato (ἔσονται γὰρ κατὰ μέθεξιν—b. 18).

These reasonings show that each separate thing, enunciated *per se* and not *per accidens*, is the same with its τ.η.ε.; that to know each thing, is, to know its τ.η.ε.; that, if you proceed to expose or lay them out, both are one and the same (ὥστε κατὰ τὴν ἔκθεσιν ἀνάγκη ἕν τι εἶναι ἄμφω—p. 1031, b. 21; with Bonitz's explanation of ἔκθεσις in his Note).

But that which is enunciated *per accidens* (*e.g., album, musicum*) cannot be truly affirmed to be one and the same with its τ.η.ε., because it has a double signification: it signifies both the accident and the subject to which such accident belongs; so that in a certain aspect it is identical with its τ.η.ε., and in another aspect it is not identical therewith (p. 1031, b. 26). The being a man, and the being a white man, are not the same; but the subject for affection is the same in both (b. 28: οὐ ταὐτὸ, πάθει δὲ ταὐτό—obscure). The absurdity of supposing, that the τ.η.ε. of a thing is different from the thing itself, would appear plainly, if we gave a distinct name to the τ.η.ε. For there must be another τ.η.ε. above this, being the τ.η.ε. of the first τ.η.ε.; and it would be necessary to provide a new name for the second τ.η.ε.: and so forward, in an ascending march *ad infinitum*. What hinders us from admitting some things at once, as identical with their τ.η.ε., if the τ.η.ε. be Essentia? (b. 31). We see from the preceding reasoning that not only the thing itself is the same with its τ.η.ε., but that the rational explanation (λόγος) of both is the same; for One, and the being One, are one and the same not *per accidens*, but *per se* (p. 1032, a. 2). If they were different, you would have to ascend to a higher τ.η.ε. of the being One; and above this, to a higher still, without end (a. 4).

It is therefore clear that, in matters enunciated *per se* and primarily, each individual thing is one and the same with its τ.η.ε. The refutations brought by the Sophists against this doctrine, and the puzzles which they start,—*e.g.*, Whether Sokrates and the being Sokrates are the same,—may be cleared up by the explanations just offered (p. 1032, a. 8). It makes no difference what particular questions the objector asks: one is as easy to solve as another (a. 10).

Of things generated, some come by Nature, some by Art, some Spontaneously. All generated things are generated out of something, by something and into or according to something (p. 1032, a. 12). The word *something* applies to each and all the Categories. Natural generation belongs to all the things whose generation comes from Nature (ἐκ φύσεως); having τὸ ἐξ οὗ—what we call Matter, τὸ ὑφ' οὗ—one of the things existing by nature (τῶν φύσει τι ὄντων—a. 17), and τὸ τί, such as a man, a plant, or the like, which we call Essences in the fullest sense (μάλιστα οὐσίας). All things generated either by Nature or Art have Matter: it is possible that each of them may be, or may not be; and this is what we call Matter in each (a. 20). As an universal truth (καθόλου), Nature includes (1) That *out of which*, or Matter; (2) That *according to which* (καθ' ὅ), every thing which is generated having a definite nature or Form, such as plant or animal; That *by which*, or nature characterized according to the Form, being the same Form as the thing generated but in another individual; for a man begets a man (a. 24).

The other generations are called Constructions (ποιήσεις), which are either from Art, or from Power, or from Intelligence. It is with these as with natural generations: some of them occur both by spontaneity and by chance (καὶ ἀπὸ ταὐτομάτου καὶ ἀπὸ τύχης—p. 1032, a. 29; the principle of these last is apparently δύναμις, the second of the three *principia* announced just before (?)); both in the one and in the other, some products

arise without seed as well as with seed, which we shall presently advert to.

The generations from Art are those of which the Form is in the mind. By Form I mean the τ.η.ε. of each thing and its First Essence (τὴν πρώτην οὐσίαν, p. 1032, b. 1). For, in a certain way, the Form even of contraries is the same; since the essence of privation is the opposite essence: for example, health is the essence of disease; for disease is declared or described as absence of health, and health is the rational notion existing in the mind and in science. Now a healthy subject is generated by such an antecedent train of thought as follows (γίγνεται δὴ τὸ ὑγιὲς νοήσαντος οὕτως—b. 6):—Since health is so and so, there is necessity, if the subject is to attain health, that such and such things should occur, *e.g.*, an even temperature of the body, for which latter purpose heat must be produced; and so on farther, until the thought rests upon something which is in the physician's power to construct. The motion proceeding from this last thought is called Construction (b. 10), tending as it does towards health. So that, in a certain point of view, health may be said to be generated out of health, and a house out of a house; for the medical art is the form of health and the building art the form of the house: I mean the τ.η.ε., or the Essence without Matter, thereof (b. 14). Of the generations and motions here enumerated, one is called Rational Apprehension, viz., that one which takes its departure from the Principle and the Form; the other, Construction, viz., that which takes its departure from the conclusion of the process of rational apprehension (ἀπὸ τοῦ τελευταίου τῆς νοήσεως —b. 17). The like may be said about each of the intermediate steps: I mean, if the patient is to be restored to health, he must be brought to an even temperature. But the being brought to an even temperature, what is it? It is so and so; it will be a consequence of his being warmed. And this last again— what is it? So and so; which already exists potentially, since it depends upon the physician to produce it, the means being at his command (τοῦτο δ' ἤδη ἐπ' αὐτῷ—b. 21).

We see thus that the Constructive Agency (τὸ ποιοῦν) and the point from which the motion towards producing health takes its origin, is, when the process is one of Art, the Form present in the mind; and, when the process is one of Spontaneity, it proceeds from that which would be the first proceeding of the artist, if Art had been concerned. In the medical art, *e.g.*, the artist begins by imparting warmth. He does this by rubbing. But this warmth might perhaps arise in the body without any such rubbing or interference by the artist. The warmth is the prime agent, in the case of spontaneous production. The warmth is either a part of health, or a condition to the existence of health, as bricks are to that of a house (p. 1032, b. 30).

Nothing can be generated, if nothing pre-existed—as has been already said before. Some part of what is generated must exist before: Matter pre-exists, as in-dwelling and not generated (ἡ γὰρ ὕλη μέρος· ἐνυπάρχει γὰρ καὶ γίγνεται αὕτη— p. 1033, a. 1. I do not understand these last words: it ought surely to be—ἐνυπάρχει γὰρ καὶ οὐ γίγνεται αὕτη. Bonitz's explanation suits these last words better than it suits the words in the actual text.).

But something of the Form or rational explanation (τῶν ἐν τῷ λόγῳ) must also pre-exist. In regard to a brazen circle, if we are asked, *Quid est?* we answer in two ways: We say of the Matter—It is brass; We say of the Form—It is such and such a figure. And this is the genus in which it is first placed (p. 1033, a. 4).

The brazen circle has Matter in its rational explanation. But that which is generated, is called not by the name of the Matter out of which it is generated, but by a derivative name formed therefrom; not ἐκεῖνο, but ἐκείνινον. A statue is called not λίθος, but λίθινος. But, when a man is made healthy, he is not said to be the Matter out of which the health is generated; because that which we call the Matter is generated out of Privation along with the subject. Thus, both the man becomes healthy, and the patient becomes healthy; but the generation is more properly said to come out of Privation: we say, *Sanus ex ægroto generatur*, rather than, *Sanus ex homine generatur* (p. 1033, a. 12). In cases where the Privation is unmarked and unnamed, as, in the case of brass, privation of the spherical, or any other, figure, and, in the case of a house, the privation of bricks or wood, the work is said to be generated out of them like a healthy man out of a sick man (a. 14). Nevertheless the work is not called by the same name as the material out of which it is made, but by a paronym thereof; not ξύλον but ξύλινον (a. 18). In strict propriety, indeed, we can hardly say that the statue is made out of brass, nor the house out of wood; for the *materia ex quâ* ought to be something which undergoes change, not something which remains unchanged (a. 21).

It was remarked that in Generation there are three things or aspects to be distinguished—

1. Τὸ ὑφ' οὗ, ὅθεν ἡ ἀρχὴ τῆς γενέσεως.
2. Τὸ ἐξ οὗ—rather ὕλη than στέρησις.
3. Τί γίγνεται.

Having already touched upon the two first, I now proceed to the third. What is it that is generated? Neither the Matter, nor the Form, but the embodiment or combination of the two. An artisan does not construct either the brass or the sphere, but the brazen sphere. If he be said to construct the sphere, it is only by accident (κατὰ συμβεβηκός), since the sphere in this particular case happens to be of brass. Out of the entire subject-matter, he constructs a distinct individual Something (p. 1033, a. 31). To make the brass round, is not to make the round, or to make the sphere, but to make a something different: that is the Form (of sphericity) embodied in another thing (a. 32). For, if the artisan made the round or the sphere, he must make them out of something different, pre-existing as a subject: *e.g.*, he makes a brazen sphere, and in this sense—that he makes out of that Matter, which is brass, this different something, which is a sphere. If he made the sphere itself—the Form of sphere—he must make it out of some pre-existent subject; and you would thus carry back *ad infinitum* the different acts of generation and different pre-existent subjects (b. 4).

It is, therefore, clear that τὸ εἶδος, or by whatever name the shape of the percipiend is, to be called, is not generated, nor is generation thereof possible; nor is there any τ.η.ε. thereof; that is, of the Form abstractedly: for it is this very τ.η.ε. which is generated or becomes embodied in something else, either by nature, or by art, or by spontaneous power (p. 1033, b. 8). The artisan makes a brazen sphere to exist, for he makes it out of brass (Matter), and the sphere (Form): he makes or embodies the Form into this Matter, and that is a brazen sphere (b. 11). If there be any generation of the sphere *per se* (τοῦ σφαιρᾷ εἶναι), it must be Something out of Something; for the Generatum must always be resolvable into a certain Matter and a certain Form. Let the brazen sphere be a figure in which all points of the circumference are equidistant from the centre; here are three things to be considered: (1) That in which what is constructed resides; (2) That which does so reside; (3) The entire Something generated or constructed—the brazen sphere. We see thus plainly that what is called the Form or Essence itself is not generated, but the combination called *according to the Form* is generated; moreover that in every Generatum there is Matter, so that the Generatum is in each case this or that (b. 19).

Can it be true, then, that there exists any sphere or house beyond those which we see or touch (*i.e.* any Form or Idea of a sphere, such as Plato advocates)? If there existed any such, it could never have become or been generated into Hoc Aliquid. It signifies only *tale*. It is neither This nor That nor any thing defined: but it (or rather the Constructive Agency) makes or generates *ex hoc tale;* and when this last has been generated, it is Tale Hoc (p. 1033, b. 22), and the entire compound is Kallias, or Sokrates, or *this* brazen sphere, while man, animal, &c., are analogous to brazen sphere generally. Even if there exist Platonic Forms by themselves, they could be of no use towards generation or the production of Essences. Frequently it is obvious that the Generans is like the Generatum, only a different individual. There is no occasion to assume the Platonic Form as an Exemplar; for the generating individual is quite sufficient of itself to be the cause of the Form in a new mass of Matter. The entire result is the given Form in these particular bones and flesh—called Kallias or Sokrates: each is different so far as Matter, but the same in the Form; for the Form is indivisible (p. 1034, a. 7).

But how does it happen that there are some things which are generated sometimes by art, sometimes spontaneously (*e.g.*, health), while in other things (*e.g.*, a house) spontaneous production never takes place? The reason is, that, in the first class of cases, the Matter which governs the work of generation by the artist, and in which itself a part of the finished product resides, is of a nature to be moved or modified by itself, while, in the second, this is not the fact; and to be moved, besides, in a certain manner and direction; for there are many things which are movable by themselves, but not in such manner and direction as the case which we are supposing requires. For example, stones are incapable of being moved in certain directions except by some other force, but they are capable of being moved by themselves in another direction; the like with fire. It is upon this that the distinction turns between some results which cannot be realized without an artist, and others which may perhaps be so realized (a. 17).

It is plain from what has been said that, in a certain sense, everything is generated from something of the same name, as natural objects are (*e.g.*, a man); or from something in part bearing the same name (as a house out of the ideal form of a house), or from something which pos-

sesses that which in part bears the same name; for the first cause of the generation is itself part of the thing generated. The heat in the motion generates heat in the body: and this is either health, or a part of health, or the antecedent of one or other of these; hence it is said to produce or generate health, because it produces that of which health is concomitant and consequent (p. 1034, a. 30; see Bonitz's correction in his Note). Essence is in these cases the beginning or principle of all generations, just as in Demonstration it is the beginning or principle of all syllogisms (a. 33). In the combinations and growths of Nature, the case is similar. The seed constructs, as Art constructs its products; for the seed has in it potentially the Form, and that from which comes the seed is, in a certain manner, of the same name with the product (b. 1). For we must not expect to find *all* generations analogous to that of man from man—woman also is generated from man, moreover, mule is not generated from mule—though this is the usual case, when there is no natural bodily defect (b. 3). Spontaneous generation occurs in the department of Nature, as in that of Art, wherever the Matter can be moved by itself in the same manner as the seed moves it: wherever the Matter cannot be so moved by itself, there can be no generation except the natural, from similar predecessors (b. 7, *ἐξ αὐτῶν* —compare Bonitz's note: "non ex ipsis, sed *ἐξ αὐτῶν τῶν ποιούντων*").

This doctrine—That the Form is not generated, does not belong to Essence alone, but also to all the other Categories alike—Quality, Quantity, and the rest (p. 1034, b. 9). It is not the Form Quality *per se* which is generated, but *tale lignum*, *talis homo:* nor the Form Quality *per se*, but *tantum lignum* or *animal* (b. 15). But in regard to Essence, there is thus much peculiar and distinction as compared with the other Categories: in the generation of Essence, there must pre-exist as generator another *actual* and *complete* Essence; in the generation of Quality or Quantity, you need nothing pre-existing beyond a *potential* Quality or a *potential* Quantity (b. 16).

A difficult question arises in this way: Every definition is a rational explanation consisting of parts; and, as the parts of the explanation are to the whole explanation, so are the parts of the thing explained to the whole thing explained. Now is it necessary, or not, that the rational explanation of the parts shall be embodied in the rational explanation of the whole (p. 1034, b. 22)? In some cases it appears to be so; in others, not. The rational explanation of a circle does not include that of its segments; but the rational explantion of a syllable does include that of its component letters. Moreover, if the parts are prior to the whole, and if the acute angle be a part of the right angle, and the finger a part of the man, the acute angle must be prior to the right angle, and the finger to the man. Yet the contrary seems to be the truth: the right angle seems prior, also the man; for the rational explanation of acute angle is given from right angle, that of finger from man: in respect to existing without the other, right angle and man seem *priora*. In fact the word *part* is equivocal, and it is only one of its meanings to call it—that which quantitatively measures another (b. 33). But let us dismiss this consideration, and let us enquire of what it is that Essence consists, as parts (b. 34). If these are (1) Matter, (2) Form, (3) The Compound of the two, and if each of these three be Essence, Matter must be considered, in a certain way, as a part of something, yet in a certain way as not so; in this latter point of view, nothing being a part except those elements out of which the rational explanation of the Form is framed (p. 1035, a. 2). Thus, flesh is not a part of flatness, being the matter upon which flatness is generated or superinduced, but flesh is a part of flat-nosedness; the brass is a part of the entire statue, but not a part of the statue when enunciated as Form, or of the ideal statue. You may discriminate and reason separately upon the statue considered as Form (apart from the complete statue; but you cannot so discriminate the material part *per se*, or the statue considered as Matter only (a. 7). Hence the rational explanation of the circle does not contain that of the segments of the circle; but the rational explanation of the syllable does contain that of the component letters. The letters are parts of the Form, and not simply the Matter upon which the Form is superinduced; but the segments are parts in the sense of being the Matter upon which the Form of the circle is superinduced (a. 12): they are, however, nearer to the Form than the brass, when the Form of a circle or roundness is generated in brass (a. 13). In a certain way, indeed, it cannot be said that *all* the letters are contained in the rational explanation of the syllables; *e.g.*, the letters inscribed in wax are not so contained, nor the sounds of those letters vibrating in the air; both these are a part of the syllable, in the sense of being the perceivable matter thereof (a. 17: *ὡς ὕλη αἰσθητή*). If a man be destroyed by being reduced to bones, ligaments, and flesh, you cannot for that reason say, that the

man is composed of these as of parts of his Essence, but as parts of his Matter: they are parts of the entire man, but not of the Form, nor of what is contained in the rational explanation; accordingly they do not figure in the discussions which turn upon rational explanation, but only when the discussions turn upon the entire or concrete subject (a. 23). Hence, in some cases, things are destroyed into the same *principia* out of which they are formed; in other cases, not. To the first class, belong all things which are taken in conjunction with Matter, such as the flat-nosed or the brazen circle; to the second class, those which are taken disjoined from Matter, with Form only. Objects of the first class, (*i.e.*, the concretes) have thus both *principia* and parts subordinate; but neither the one nor the other belong to the Form alone (a. 31). The plaster-statue passes when destroyed into plaster, the brazen circle into brass, Kallias into flesh and bones; and even the circle, when understood in a certain sense, into its segments, for the term circle is used equivocally, sometimes to designate the Form of a circle, sometimes to designate this or that particular circle —particular circles having no name peculiar to themselves (b. 3).

That which has been already said is the truth; yet let us try to recapitulate it in a still clearer manner (p. 1035, b. 4). The parts of the rational explanation or notion, into which that notion is divided, are prior to the notion, at least in some instances. But the notion of a right angle is prior to that of an acute angle or is one of the elements into which the notion of an acute angle is divided; for you cannot define an acute angle without introducing the right angle into your definition, nor can you define the semicircle without introducing the circle, nor the finger without introducing the man—the finger being such and such a part of the man. The parts into which man is divided as Matter, are posterior to man; those into which man is divided as parts of his Form or Formal Essence, are prior to man—at least some of them are so (b. 14). Now, since the soul of animals (which is the Essence of the animated being—b. 15) is the Essence and the Form and the *τ.η.ε.* of a suitably arranged body; and, since no good definition of any one part can be given, which does not include the function of that part, and this cannot be given without the mechanism of sense (b. 18), it follows that the parts of this soul, or some of them at least, are prior to the entire animal, alike in the general and in each particular case. But the body and its parts are posterior to the soul or Form, and into these, as parts, the entire man (not the Essence or Form) is divided. These parts are, in a certain sense, prior to the entire man, and, in a certain sense, not; for they cannot even exist at all separately (b. 23): the finger is not a finger unless it can perform its functions, *i.e.*, unless it be animated by a central soul; it is not a finger in every possible state of the body to which it belongs; after death, it is merely a finger by equivocation of language. There are, however, some parts, such as the brain or heart, to which the Form or Essence is specially attached which are neither prior nor posterior but *simul* to the entire animal (b. 25).

Man, horse, and such like, which are predicated universally of particular things, are not Essentia; they are compounds of a given Form and a given Matter (but of that first Matter) which goes to compose Universals. It is out of the last Matter, which comes lowest in the series, and is already partially invested with Form, that Sokrates and other particular beings are constituted (p. 1035, b. 30).

Thus, there are parts of the Form or *τ.η.ε.*, parts of the Matter, and parts of the Compound including both. But it is only the parts of the Form that are included as parts in the rational explanation or notion; and this notion belongs to the Universal; for circle and the being a circle, soul and the being a soul —are one and the same (p. 1036, a. 2). Of the total compound (this particular circle), no notion, no definition, can be given: whether it be a particular circle perceivable by sense, in wood or brass, or merely conceivable, such as the mathematical figures. Such particular circles are known only along with actual perception or conception (a. 6. *Νοεῖν* here means the equivalent of *ἀφαιρεῖν* = *χωρίζειν τῇ διανοίᾳ*—"die Thätigkeit des Abstrahirens, durch welche das Mathematische gewonnen wird"—Schwegler ad loc. Comm., p. 101, Pt. II.): when we dismiss them as actualities from our view or imagination, we cannot say clearly whether they continue to exist or not; but we always talk of them and know them by the rational explanation or definition of the universal circle (a. 7: *ἀπελθόντας δ' ἐκ τῆς ἐντελεχείας οὐ δῆλον πότερόν ποτέ εἰσιν ἢ οὐκ εἰσίν, ἀλλ' ἀεὶ λέγονται καὶ γνωρίζονται τῷ καθόλου λόγῳ*. I apprehend that Aristotle is here speaking of the *κύκλος νοητός* only, not of the *κύκλος αἰσθητός* or *χαλκοῦς κύκλος*. He had before told us that, when the *χαλκοῦς κύκλος* passes out of *ἐντελέχεια* or *φθείρεται*, it passes into *χαλκός*. He can hardly therefore mean to say that, when the *χαλκοῦς*

κύκλος passes out of ἐντελέχεια, we do not clearly know whether it exists or not. But respecting the κύκλος νοητός or mathematical circle, he might well say that we did not clearly know whether it existed at all under the circumstances supposed: if it cease to exist, we cannot say εἰς δ φθείρεται). Matter is unknowable *per se* (καθ' αὑτήν—a. 9, *i.e.*, if altogether without Form). One variety of Matter is perceivable by sense, as brass, wood, and all moveable matter; another variety is conceivable, viz., that which exists in the perceivable variety, but not *quâ* perceivable—the mathematical figures (νοητὴ δὲ ἡ ἐν τοῖς αἰσθητοῖς ὑπάρχουσα μὴ ᾗ αἰσθητά, οἷον τὰ μαθηματικά—a. 12; *i.e.*, making abstraction of the acts of sense, or of what is seen and felt by sense, viz., colour by the eye, resistance by the touch; and leaving behind simply the extension or possibility of motion, which is a geometrical line).

We have now laid down the true doctrine respecting Whole and Part, Prius and Posterius. And, if any one asks whether the right angle, the circle, the animal, is prior or not to the parts into which it is divided and out of which it is formed, we cannot answer absolutely either Yes or No. We must add some distinguishing words, specifying what we assert to be prior, and to what it is prior (p. 1036, a. 19). If by the soul you mean the Form or Essence of the living animal, by the circle, the Form of the circle, by the right angle, the Form or Essence thereof,—then this Form is posterior in regard to the notional parts of which it is constituted, but prior in regard to the particular circle or right angle. But, if by soul you meant the entire concrete animal, by right angle or circle, these two figures realized in brass or wood, then we must reply that any one of these is prior as regards the material parts of which it is constituted (a. 25).

Another reasonable doubt arises here (ἀπορεῖται δ' εἰκότως—p. 1036, a. 26) as to which parts belong to the Form alone, which to the entire Concrete. Unless this be made clear, we can define nothing; for that which we define is the Universal and the Form, and, unless we know what parts belong to the Matter and what do not, the definition of the thing can never be made plain (a. 30). Now, wherever the Form is seen to be superinduced upon matters diverse in their own Form, the case presents no difficulty: every one sees circles in brass, stone, wood, etc., and is well aware that neither the brass, nor the stone, belongs to the Form or Essence of the circle, since he easily conceives a circle without either. But, if a man had never seen any circles except brazen circles, he would have more difficulty in detaching mentally the circle from the brass, and would be more likely to look upon brass as belonging to the Form of circle; although, in point of fact, he would have no more logical ground for supposing so than in the case just before supposed; for the brass might still belong only to the Matter of circle (b. 2). This is the case with the Form of man. It is always seen implicated with flesh, bones, and such like parts. Are these parts of the Form of man? Or are they not rather parts of the Matter, though we are unable to conceive the Form apart from them, because we never see it in conjunction with any other Matter? This is at least a possibility, and we cannot see clearly in what cases it must be admitted. Some theorists are so impressed by it as to push the case farther, and apply the same reasoning to the circle and triangle. These theorists contend that it is improper to define a circle and a triangle by figure, lines, continuity, &c., which (they affirm) are only parts of the Matter of circle and triangle; as flesh and bones are parts of the Matter of man. They refer all of them to numbers as the Form, and they affirm that the definition of the dyad is also the definition of a line (b. 12). Among the partisans of Ideas, some call the dyad αὐτογραμμή; others call it the Form of a line; saying that in some cases the Form and that of which it is the Form are the same, as the dyad and the Form of the dyad, but that this is not true about line. (These two opinions seem to be substantially the same, and only to differ in the phrase. Αὐτογραμμή means the same as τὸ εἶδος τῆς γραμμῆς: it seems to have been a peculiar phrase adopted by some Platonists, but not by all. Others preferred to say τὸ εἶδος τῆς γραμμῆς.) These reasonings have already misled the Pythagoreans, and are likely to mislead others also: they would conduct us to the recognition of one and the same Form in many cases where the Form is manifestly different: they lead us even to assume one single Form universally, reducing every thing besides to be no Form, but merely Matter to that one single real Form. By such reasoning, we should be forced to consider all things as One (b. 20), which would be obviously absurd.

We see from hence that there are real difficulties respecting the theory of Definition, and how such difficulties arise. It is because some persons are forward overmuch in trying to analyse

every thing and in abstracting altogether from Matter; for some things include Matter along with the Form, or determined in a certain way, *i.e.*, this along with that, or these things in this condition (p. 1036, b. 22). The comparison which the younger Sokrates was accustomed to make about the animal is a mistaken one (b. 24): it implies that man may be without his material parts, as the circle may exist without brass. But this analogy will not hold; animal is something perceivable by sense and cannot be defined without motion; of course, therefore, not without bodily members organized in a certain way (b. 30). The hand is not a part of man, when it is in any supposable condition, but only when it can perform its functions, that is, when it is animated; when not animated, it is not a part (b. 32). Clearly the soul is the first Essence or Form, the body is Matter, and man or animal is the compound of both as an Universal; while Sokrates, Koriskus &c., are as particulars to this Universal, whether you choose to take Sokrates as soul without body, or as soul with body (p. 1037, a. 5-10: these words are very obscure).

Respecting Mathematical Entia, why are not the notions of the parts of the notion of the whole? *e.g.*, why is not the notion of a semi-circle part of the notion of a circle? Perhaps it will be replied that this circle and semi-circle are not perceivable by sense: but this after all makes no difference; for some things even not perceivable by sense involve Matter along with them, and indeed Matter is involved in every thing which is not τ.η.ε. and Form αὐτὸ καθ' αὑτό. The semi-circles are not included as parts of the notion of the universal circle; but they are parts of each particular circle: for there is one Matter perceivable and another cogitable (p. 1036, a. 34.—Bonitz remarks that these words from p. 1036, a. 22 to p. 1037, a. 5, are out of their proper place). Whether there be any other Matter, besides the Matter of these Mathematical Entia, and whether we are to seek a distinct Form and Essence for them—such as numbers, must be reserved for future inquiry. This has been one of our reasons for the preceding chapters about perceivable Essences; for these last properly belong to the province of Second Philosophy — of the physical theorist (τῆς φυσικῆς καὶ δευτέρας φιλοσοφίας ἔργον—p. 1037, a. 15). The physical philosopher studies not merely the Matter, but the Form or notional Essence even more (a. 17).

We are now in a position to clear up what was touched upon in the Analytica (Anal. Poster. II. p. 92, a. 27; also, De Interp. v. p. 17, a. 13), but not completed, respecting Definition. How is it that the definition is One? We define man *animal bipes:* How is it that this is One and not Many? Man and white are two, when the latter does not belong to the former: when it does so belong to and affects the former, the two are One—white man (p. 1037, b. 16): that is, they are One κατὰ πάθος. But the parts included in the definition are not One κατὰ πάθος, nor are they one κατὰ μέθεξιν; for the Genus cannot be said to partake of the Differentiæ. If it did, it would at one and the same time partake of Opposita, for the Differentiæ are Opposita to each other. And, even if we say that the Genus does partake of the Differentiæ, the same difficulty recurs, when the Differentiæ are numerous. The Genus must partake alike and equally of all of them; but how is it that all of them are One, and not Many? It cannot be meant that all of them belong essentially to the thing; for, if that were so, all would be included in the definition, which they are not. We want to know why or how those Differentiæ which are included in the definition coalesce into One, without the rest: for we call the *definiend* ἕν τι καὶ τόδε τι (b. 27).

In answering this question, we take, as a specimen, a definition which arises out of the logical subdivision of a Genus (p. 1037, b. 28). Definition is given by assigning the Genus and Difference: the Genus is the Matter, the Difference is the Form or Essence; the two coalesce into one as Form and Matter. In the definition of man—*animal bipes*—*animal* is the Matter and *bipes* the Form; so that the two coalescing form an essential One. It does not signify through how many stages the logical subdivision is carried, provided it be well done; that is, provided each stage be a special and appropriate division of all that has preceded. If this condition be complied with, the last differentia will include all the preceding, and will itself be the Form of which the genus serves as Matter. You divide the genus animal first into ζῷον ὑπόπουν—ζῷον ἄπουν; you next divide ζῷον ὑπόπουν into ζῷον ὑπόπουν δίπουν—ζῷον ὑπόπουν πολύπουν; or perhaps into ζῷον ὑπόπουν σχιζόπουν—ζῷον ὑπόπουν ἄσχιστον. It is essential that the next subdivision applied to ζῷον ὑπόπουν should be founded upon some subordinate differentia specially applying to the feet (p. 1038, a. 14: αὗται γὰρ διαφοραὶ ποδός· ἡ γὰρ σχιζοποδία ποδότης τις). If it does not specially apply to the feet, but takes in some new attribute (*e.g.*, πτερωτόν, ἄπτερον), the division will

be unphilosophical. The last differentia ζῷον δίπουν includes the preceding differentia ὑπόπουν: to say ζῷον ὑπόπουν δίπουν would be tautology. Where each differentia is a differentia of the preceding differentiæ, the last differentia includes them all and is itself the Form and Essence, along with the genus as Matter (a. 25). The definition is the rational explanation arising out of these differences, and by specifying the last it virtually includes all the preceding (a. 29: ὁ ὁρισμὸς λόγος ἐστὶν ὁ ἐκ τῶν διαφορῶν, καὶ τούτων τῆς τελευταίας κατά γε τὸ ὀρθόν).

In the constituents of the Essence, there is no distinctive order of parts; no subordination of *prius* and *posterius;* all are equally essential and co-ordinate (τάξις δ' οὐκ ἔστιν ἐν τῇ οὐσίᾳ—p. 1038, a. 33).

As we are treating now about Essence, it will be convenient to go back to the point from which we departed, when we enumerated the four varieties recognized by different philosophers. These were (1) The Subject—Substratum—Matter, which is a subject of predicates in two different ways: either as already an Hoc Aliquid and affected by various accidents, or as not yet an Hoc Aliquid, but simply Matter implicated with Entelechy (p. 1038, b. 6); (2) Form—Essence — the τ.η.ε.; (3) The Compound or Product of the preceding two; (4) The Universal (τὸ καθόλου). Of these four, we have already examined the first three; we now proceed to the fourth.

Some philosophers consider the Universal to be primarily and eminently Cause and Principle (p. 1038, b. 7). But it seems impossible that any thing which is affirmed universally can be Essence. For that is the First Essence of each thing which belongs to nothing but itself; but the Universal is by its nature common to many things. Of which among these things is it the Essence? Either of all or of no one. Not of all certainly; and, if it be the Essence of any one, the rest of them will be identical with that one; for, where the Essence is one, the things themselves are one (b. 15). Besides, the Essence is that which is not predicated of any subject: but the Universal is always predicated of a subject.

Perhaps, however, we shall be told, that the Universal is not identical with τ.η.ε., but is Essence which is immanent in or belongs to τ.η.ε., as animal in man and horse. But this cannot be admitted. For, whether we suppose animal to be definable or not, if it be essence of any thing, it must be the essence of something to which it belongs peculiarly, as *homo* is the essence of man peculiarly; but, if animal is to be reckoned as the essence of man, it will be the essence of something to which it does not peculiarly belong; and this contradicts the definition of Essence (p. 1038, b. 15-23. This passage is very obscure, even after Bonitz and Schwegler's explanatory notes. I incline to Schwegler, and to his remark, Comm. II. p. 115, that the text of b. 23 ought to be written ἐν ᾧ μὴ ὡς ἴδιον ὑπάρχει.).

Again, it is impossible that Essence, if composed of any elements, can be composed of what is not Essence, as of Quality; for this would make Quality *prius* as regards Essence; which it cannot be, either in reason (λόγῳ), or in time, or in generation. If this were so, the affections would be separable from Essences (p. 1038, b. 28). Essence, if composed of any thing, must be composed of Essence.

Once more, if the individual man or horse are Essences, nothing which is in the definition of these can be Essence; nor apart from that of which it is Essence; nor in any thing else. There cannot be any man, apart from individual men (p. 1038, b. 34).

Hence we see clearly that none of the universal predicates are Essence: none of them signify Hoc Aliquid, but Tale. To suppose otherwise, would open the door to many inadmissible consequences, especially to the argument of the 'Third Man' (p. 1039, a. 2).

Another argument to the same purpose:—It is impossible that Essence can be composed of different Essences immanent in one Entelechy. Two in the same Entelechy can never be One in Entelechy. If indeed they be two *in potentiâ*, they may coalesce into one Entelechy, like one double out of two potential halves. But Entelechy establishes a separate and complete existence (p. 1039, a. 7); so that, if Essence is One, it cannot be made up of distinct Essences immanent or inherent. Demokritus, who recognized only the atoms as Essences, was right in saying, that two of them could not be One, nor one of them Two. The like is true about number, if number be, as some contend, a synthesis of monads. For either the dyad is not One; or else the monads included therein are not monads ἐντελεχείᾳ (a. 14).

Here, however, we stumble upon a difficulty. For, if no Essence can be put together out of Universals, nor any compound Essence out of other Essences existing as Entelechies, all Essence must necessarily be simple and uncompounded, so that no definition can be given of it.

But this is opposed to every one's opinion, and to what has been said long ago, that Essence alone could be defined; or at least Essence most of all. It now appears that there can be no definition of Essence, nor by consequence of any thing else. Perhaps, however, this may be only true in a certain sense: in one way, definition is possible; in another way, not. We shall endeavour to clear up the point presently (p. 1039, a. 22.—Schwegler says in his note upon this passage: "Die von Aristoteles häufig berührte, doch nie zur abschliessenden Lösung gebrachte, Grundaporie des aristotelischen Systems"—Comm. II. p. 117).

Those who maintain that Ideas are self-existent are involved in farther contradictions by admitting at the same time that the Species is composed out of Genus and Differentia. For, suppose that these Ideas are self-existent and that *αὐτοζῷον* exists both in man and horse: *αὐτοζῷον* is, in these two, either the same or different numerically. It is, of course, the same in definition or notion (*λόγῳ*); of that there can be no doubt. If it be numerically same (*ὥσπερ σὺ σαυτῷ*) in man and in horse, how can this *same* exist at once in separate beings, unless we suppose the absurdity that it exists apart from itself (p. 1039, b. 1)? Again, are we to imagine that this generic Ens, *αὐτοζῷον*, partakes at the same time of contrary differentiæ—the dipod, polypod, apod? If it does not, how can dipodic or polypodic animals really exist? Nor is the difficulty at all lessened, if, instead of saying that the generic Ens partakes of differentiæ, you say that it is *mixed* with them, or *compounded* of them, or *in contact* with them. There is nothing but a tissue of absurdities (*πάντα ἄτοπα*—b. 6).

But take the contrary supposition and suppose that the *αὐτοζῷον* is numerically different in man, horse, &c. On this admission, there will be an infinite number of distinct beings of whom the *αὐτοζῷον* is the Essence; man, for example, since animal is not accidental, but essential, as a constituent of man (p. 1039, b. 8). *Αὐτοζῷον* will thus be Many ("ein Vielerlei"—Schwegler); for it will be the Essence of each particular animal, of whom it will be predicated essentially and not accidentally (*οὐ γὰρ κατ' ἄλλο λέγεται*—*i.e.*, this is not a case where the predicate is something distinct from the subject). Moreover all the constituents of man will be alike Ideas (*e.g.*, not merely *ζῷον*, but *δίπουν*); now the same cannot be Idea of one thing and Essence of another; accordingly, *αὐτοζῷον* will be each one of the essential constituents of particular animals (*δίπουν*, *πολύπουν*, b. 14).

Again, whence comes *αὐτοζῷον* itself, and how do the particular animals arise out of it? How can the *ζῷον* which is Essence, exist apart from and alongside of *αὐτὸ τὸ ζῷον*? (p. 1039, b. 15.)

These arguments show how impossible it is that there can exist any such Ideas as some philosophers affirm (p. 1039, b. 18).

We have already said that there are two varieties of Essence: (1) The Form alone, (2) The Form embodied in Matter. The Form or Essence in the first meaning, is neither generable nor destructible; in the second meaning it is both. Τὸ *οἰκίᾳ εἶναι* is neither generable nor destructible; *τὸ τῇδε τῇ οἰκίᾳ εἶναι* is both the one and the other (p. 1039, b. 25). Of these last, therefore, the perceivable or concrete Essences, there can be no definition nor demonstration, because they are implicated with Matter, which is noway necessary, or unchangeable, but may exist or not exist, change or not change. Demonstration belongs only to what is necessary; Definition only to Science, which cannot be to-day Science and to-morrow Ignorance. Neither Science, nor Demonstration, nor Definition, applies to such things as may be otherwise: these latter belong to Opinion (*τοῦ ἐνδεχομένου ἄλλως ἔχειν*—p. 1040, a. 1). You cannot have Science or Demonstration or Definition about particular or perceivable things, because they are destroyed and pass out of perception, so that you do not know what continues to be true about them; even though you preserve the definition in your memory, you cannot tell how far it continues applicable to them (a. 7). Any definition given is liable to be overthrown.

Upon the same principle, there cannot be any definition of the Platonic Ideas; each of which is announced as a particular, distinct, separable, Ens (p. 1040, a. 8). The definition must be composed of words—of the words of a language generally understood—and of words which, being used by many persons, are applicable to other particulars besides the definiend (you define Alexander as white, thin, a philosopher, a native of Aphrodisias, &c., all of which are characteristics applicable to many other persons besides). The definer may say that each characteristic taken separately will apply to many things, but that the aggregate of all together will apply to none except the definiend. We reply however, that *ζῷον δίπουν* must have at least two subjects to which it applies—*τὸ ζῷον* and *τὸ δίπουν*. Of course this is

all the more evident about eternal Entia like the Platonic Ideas, which are prior to the compound and parts thereof (*ζῷον* and *δίπουν* are each prior and both of them parts of *αὐτοάνθρωπος*), and separable, just as *αὐτοάνθρωπος* is separable (a. 14-20); for either neither of them is separable, or both are so. If neither of them is separable, then the Genus is nothing apart from the Species, and the Platonic assumption of self-existent Ideas falls to the ground; if both are separable, then the Differentia is self-existent as well as the Genus (a. 21): there exist some Ideas prior to other Ideas. Moreover, the Genus and Differentia, the component elements of the Species, are logically prior to the Species: suppress the Species, and you do not suppress its component elements; suppress these, and you *do* suppress the Species (a. 21). We reply farther that, if the more compound Ideas arise out of the less compound, the component elements (like *ζῷον δίπουν*) must needs be predicable of many distinct subjects. If this be not so always, how are we to distinguish the cases in which it is true from those in which it is not? You must assume the existence of some Idea which can only be predicated of some one subject, and no others. But this seems impossible. Every Idea is participable (a. 27).

These philosophers do not reflect that definition is impossible of eternal Essences (which the Platonic Ideas are), especially in cases where the objects are essentially unique, as Sun, or Moon, or Earth (p. 1040, a. 29). When they try to define Sun, they are forced to use phrases which are applicable to many in common; but Sun, (and each Idea) is particular and individual, like Kleon or Sokrates. Why does none of them produce a definition of an Idea? If any one tried, he would soon see the pertinence of the above remarks (b. 3). (Alexander, Bonitz, and Schwegler, all observe incidentally that the reasoning of what immediately precedes is weak and sophistical. Bonitz, p. 352, gives a good summary of the chapter, concluding: "Hoc capite non id ipsum demonstrat, res singulas non esse substantias, sed rerum singularum non esse definitionem neque scientiam; nimirum quum substantiae vel unice vel potissimum esse definitionem demonstratum sit, c. 4, hoc si comprobat, illud simul est comprobatum.")

It is farther evident that many apparent Essences are not strictly and truly Essences; for example, the parts of animals; since not one of them is separated from the whole (*οὐθὲν γὰρ κεχωρισμένον αὐτῶν ἐστίν*—p. 1040, b. 6; Alexander says *ad loc.*: *οὐσίας ἐκεῖνά φαμεν ὅσα καθ' αὑτὰ ὄντα δύναται τὸ οἰκεῖον ἔργον ἀποτελεῖν· οὐσία γὰρ οὐδὲν ἄλλο ἐστὶν ἢ τὸ ἀφ' οὗ τὸ ἑκάστου ἔργον ἐκπληροῦται· οὐσία γὰρ καὶ εἶδος Σωκράτους ἡ τοῦ Σωκράτους ψυχή, ἀφ' ἧς αὐτῷ τὸ τοῦ ἀνθρώπου ᾗ ἄνθρωπος ἔργον ἐκπληροῦν*). When any one of them is separated, it exists only in the character of Matter—earth, fire, air; none of them, in this separate condition, being an unity, but only like a heap of grains of gold or tin before they are melted and combined into one. We might suppose, indeed, that the parts of the body, and the parts of the soul, of animated beings, come near to Essence, both one and the other, alike potentially and actually (b. 12), because they have principles of motion in their turnings (*καμπαῖς*), so that in some cases they continue separately alive after division. Still the functions of the part alone must be really regarded as nothing more than potential, wherever the oneness and continuity of the whole is the work of Nature (b. 15), and not a mere case of contact or forcible conjunction.

Nevertheless the being One, or Unity (p. 1040, b. 16), is not itself the Essence of things. Unum is predicated in the same manner as Ens; the two may always be predicated together: the Essence of Unum is One; and things of which the Essence is Unum Numero, are themselves numerically one. Neither Unum nor Ens is the Essence of things any more than the being an Element, or the being a Principle, can be the Essence thereof: we have farther to enquire what the Principle is, in order to bring the problem into a more cognizable shape (b. 20). Unum and Ens are more near to Essence than either Element, Principle, or Cause; nevertheless neither Unum nor Ens is Essence; for nothing which is common to many things is Essence. Essence belongs only to itself and to that which has itself. Farther, Unum cannot be in many places at once; but that which is common is in many places at once. It is thus plain that nothing Universal exists apart or separate from particulars (b. 27).

The advocates of the (Platonic) Ideas are right in affirming them to be separate, if they be Essences; but they are wrong in calling that which is predicable of many things (the Universal) an Idea (p. 1040, b. 29). When asked, What are these indestructible Essences of which you speak, as apart from the visible individual objects?—they had no intelligible answer to give. Accordingly they were forced to make these Essences

the same specifically with the destructible (individual) objects; for *these* we do know (b. 33). They simply prefixed the word αὐτό to the names of sensible objects—αὐτοάνθρωπος, αὐτοΐππος. But these Ideas might still exist, even though we knew not what they were; just as eternal Essences like the stars would still exist, even though we had never seen them (p. 1041, a. 2).

Let us again examine what we call Essence, and what sort of thing it is; and let us take another point of departure, which may perhaps help us to understand what that Essence is which is apart and separate from perceivable Essences (p. 1041, a. 9). We know that Essence is a certain variety of Principle or Cause; and from this premiss we will reason (a. 10). Now the enquiry into Cause, or the Why, always comes in this shape: Why does one thing belong to another? The enquiry, Why a thing is itself? is idle. The fact—the ὅτι—must be assumed to be clear and known in the first instance. You know that the moon is eclipsed, as matter of fact; you proceed to enquire into the cause thereof (a. 11-24). Why does it thunder? or, to enunciate the same question more fully, Why is there noise in the clouds? The *quæsitum* is always one thing predicated of another (a. 26). Why are these materials, bricks and stones, a house? Here the answer sought is, the Cause; and that is the τ.η.ε., speaking in logical or analytical phraseology (λογικῶς—*i.e.*, that which belongs to the λόγος τῆς οὐσίας). In some cases, this *quæsitum* is a Final Cause, as in the case of a bed or a house; in others, an Efficient or Movent Cause; for that also is a variety of Cause, generally sought for in regard to things generated or destroyed; but the other (viz., τὸ τ.η.ε., "ipsa rei forma ac notio, aut concepta in animo artificis, aut inclusa δυνάμει in ipsâ naturâ ac semine rei"—Bonitz, Comm. p. 359) is sought for in regard to εἶναι.

The true nature of the *quæsitum* is often unperceived, when the problem is announced without stating distinctly the subject and predicate in their mutual relations (ἐν τοῖς μὴ καταλλήλως λεγομένοις, p. 1041, a. 33). For example, ἄνθρωπος διὰ τί ἐστιν; is ambiguous by imperfect enunciation. As it stands, it might be supposed to be intended as ἄνθρωπος διὰ τί ἐστιν ἄνθρωπος; which would be a question idle or null. To make it clear, you ought to distinguish the two members to which the real *quæsitum* refers (b. 2), and say διὰ τί τάδε ἢ τόδε ἐστὶν ἄνθρωπος; your real enquiry is about the ὕλη or Matter, why it exists in this or that manner. Why are these materials a house? Because the Essence of a house belongs to them (b. 6). Some τ.η.ε, some sort of εἶναι, must belong to the Matter (b. 4). Why is this Matter a man? or why is the body disposed in this particular way a man? Here we enquire as to the Cause which acts upon a certain Matter; and that is the Form whereby the thing is; which again is the Essence (b. 8).

Hence it is plain that a distinction must be taken between the Simple and the Compound. The enquiry above described, and the teaching above described, cannot apply to the Simple, which must be investigated in another way (p. 1041, b. 9). Compounds are of two sorts—aggregates like a *heap* (mechanical), and aggregates like a *syllable* (organic or formal). In these last there are not merely the constituent elements, but something else besides (b. 16). The syllable *ba* is somthing more than the letters *b* and *a*; flesh is something more than fire and earth, its constituent elements. Now this *something more* cannot be itself a constituent element; for, if that were so, flesh would be composed of three constituent elements instead of two, and we should still have to search for the *something beyond*, and this ulterior process might be repeated *ad infinitum* (b. 22). Nor can the *something beyond* be itself a compound of several elements, for we should still have to find the independent something which binds these into a compound. It is plain that this *something beyond* must be in its nature quite distinct from an element, and must be the cause why one compound is flesh, another compound a syllable, and so about all the remaining compounds. Now this is the Essence of each compound—the First Cause of existence to each (b. 25). The Element (στοιχεῖον) is that into which the compound is separated, as included Matter (ἐνυπάρχον ὡς ὕλην): *b* and *a*, in the syllable *ba* (b. 32). There are some things which are not the Essences of objects (white, for example, is not of the Essence of man, but an attribute); but in all cases where compounds have come together according to Nature and by natural process, that Nature also which is not Element but Principle is the Essence (b. 28: ἐπεὶ δ' ἔνια οὐκ οὐσίαι τῶν πραγμάτων, ἀλλ' ὅσαι οὐσίαι κατὰ φύσιν καὶ φύσει συνεστήκασι, φανείη ἂν καὶ αὕτη ἡ φύσις οὐσία, ἥ ἐστιν οὐ στοιχεῖον ἀλλ' ἀρχή. Schwegler in his note, p. 135, proposes to correct this passage by striking out καί before the words αὕτη ἡ φύσις οὐσία. But, if this were done, it would make the passage mean that ὕλη or στοιχεῖον is not οὐσία, and that the other

φύσις which is not στοιχεῖον, is to be regarded exclusively as οὐσία. Now this is certainly not the doctrine of Aristotle, who expressly declares ὕλη to be οὐσία; see H, p. 1042, a. 32. Retaining the καί, the passage will then mean that not merely ὕλη, but *also* φύσις which is not ὕλη, is οὐσία).

Book H.

In this Book, Aristotle begins by recapitulating the doctrines and discussions of the preceding. His purpose had been declared to be the investigation of the Causes, Principles, and Elements of Essences. Now Essences are diverse: some universally admitted, as the natural elements and simple bodies, also plants, animals, and the parts of each, lastly, the heaven and the parts thereof; others not universally admitted, but advocated by some philosophers, as the Ideas and Mathematical Entia; others, again, which we arrive at by dialectical discussion, as τὸ τ.η.ε., the Substratum (Logical Entia—ἐκ τῶν λόγων, p. 1042, a. 12), the Genus more Essence than the Species, the Universal more Essence than Particulars. The (Platonic) Ideas make a near approach to the Genus and the Universal; they are vindicated as Essences upon similar grounds. Next, since τὸ τ.η.ε. is Essence, and since the Definition is the rational explanation of τ.η.ε., we found it necessary to discuss Definition; and, since the Definition is a sentence having parts, we were called upon to examine these parts, and to explain what parts belonged both to Essence and to Definition. We decided farther, after discussion, that the Universal and the Genus were not Essence; the Platonic Ideas and the Mathematical Entia we postponed for the moment, and we confined ourselves to the perceivable Essences, recognized by all (a. 25).

Now all these perceivable Essentiæ include Matter. The Substratum—Matter in one way—is Essence; while, in another way, the Form and the λόγος is Essence; and finally the Compound of the two is Essence. Matter is Hoc Aliquid, not ἐνεργείᾳ but only δυνάμει. Form is an Hoc Aliquid separable by reason (τῷ λόγῳ χωριστόν, p. 1042, a. 29.) The Compound of the two, the complete Hoc Aliquid, is capable of existing separably, in an absolute sense (which is true also of some Forms), and is liable alone to generation and destruction (a. 30).

It is clear that Matter also, not less than Form, is Essence; for in all changes from opposite to opposite, there is a certain substratum to such changes. Thus, in changes of Place, there is a substratum which is now here, presently there; in changes of Quantity, what is now of such and such a size, is presently greater or less; in changes of Quality, what is now healthy is presently sick; in changes of Essence, what is now in course of generation is presently in course of destruction, or what is now the substratum of some given Form (and is thus Hoc Aliquid) is presently the substratum of Privation, and thus no longer Hoc Aliquid. Among these four varieties of change (κατ' οὐσίαν, κατὰ ποσόν, κατὰ ποιόν, κατὰ τόπον) the three last are consequent upon the first, but the first is not consequent upon all the three last; for we cannot maintain that, because a thing has Matter capable of local movement, it must therefore have generable and destructible Matter (p. 1042, b. 6).

Having discussed the Essence of perceivable things so far forth as *potential*, we now proceed to the same Essence so far forth as *actual* (ἡ δυνάμει οὐσία—ἡ ὡς ἐνέργεια οὐσία τῶν αἰσθητῶν—p. 1042, b. 10). What is this last? Demokritus recognizes a primordial body one and the same as to Matter, but having three differences—in figure, in position, in arrangement. But it is plain that this enumeration is not sufficient and that there are many other differences, to each of which corresponds a special acceptation of ἔστι (τὸ ἔστι τοσαυταχῶς λέγεται—b. 26). Some differences depend upon the mode of putting together constituent materials (συνθέσει τῆς ὕλης—b. 16), as mixture, tying, gluing, pegging, &c.; some upon position, as threshold, coping, &c.; some upon time; some upon place; some upon affections of perceivable things, such as hardness, softness, dryness, moisture, density, rarity, &c.; some upon combinations of the foregoing; some again simply upon excess or defect in quantity. To one or other of these, ἔστιν has reference in each particular case. We say—This *is* a threshold, because it lies in a particular manner: *Is* (or *To be*—τὸ εἶναι) signifies in this case that particular manner of lying. To be ice, is to have become solidified in this particular manner (b. 28). We must therefore look for the summa genera of the differences; in some cases τὸ εἶναι will be defined by all these differences: thus more or less dense, more or less rare, belong to the genus excess and defect; differences of figure, smoothness, roughness, &c., belong to the genus straight and curve; in other cases, to be, or not to be, will depend upon mixture, as the genus (p. 1043, a. 1).

If then the Essence is the cause why each thing is what it is, we must seek in these differences the cause why each thing is what it is (p. 1043, a. 3). None of these differences indeed is itself Essence,—not even when it is embodied or combined with Matter; but it is in each the analogue of Essence, and must be employed in defining, just as in real and true Essence we define by predicating of Matter the Actuality or Formality (ὡς ἐν ταῖς οὐσίαις τὸ τῆς ὕλης κατηγορούμενον αὐτὴ ἡ ἐνέργεια—a. 6). Thus, if we define a threshold, we say—a piece of wood or stone lying in this particular way; if we define ice, we say—water frozen or solidified in this particular way, &c. The Form or Actuality of one Matter is different from that of another; so also is the rational explanation or Definition; in some cases it is composition, in others mixture, &c., and so forth. If any one defines a house by saying that it is stone or brick, he indicates only the potential house, for these are the Matter (a. 15); if he defines it—a vessel protecting bodies or property, he then assigns the Actuality (ἐνέργειαν); if he includes both of the above in his definition, he then gives the third Essence completed out of the two together (τὴν τρίτην καὶ τὴν ἐκ τούτων οὐσίαν—a. 18). To define from the differences, is to define from the side of the Actuality or Form; to define from the included elements (ἐκ τῶν ἐνυπαρχόντων) is to define from the side of the Matter (a. 20).

We see herefrom what perceivable Essence is, and how it is: partly, of the nature of Matter; partly, of Form and Actuality or Energy: again, the third or Concrete, out of both combined (p. 1043, a. 28). Sometimes, it is not clear whether the name signifies this third Concrete, or the Form and Energy. Thus, when you say a house, do you mean a protective receptacle built of bricks? or do you mean simply a protective receptacle—the Form simply, without specifying the Matter? When you say a line, do you mean a dyad in length—Form in Matter? or simply a dyad—Form alone? When you talk of an animal, do you mean soul in body? or simply soul, which is the Essence and Actuality of a certain body? The word animal may be applied to both, not indeed univocally, as implying generic resemblance, but (quasi-univocally, or semi-univocally) by analogical relationship to a common term (οὐχ, ὡς ἑνὶ λόγῳ λεγόμενον, ἀλλ' ὡς πρὸς ἕν—a. 36). This distinction, however, though important in some respects, is unimportant so far as regards the investigation about perceivable Essence: for the τ.η.ε. belongs to the Form and the Actuality (a. 38). Soul, and the being soul, are identical; but man, and the being man, are not identical; unless the soul be called man. Thus this identity exists in some cases, but not in others (b. 4). A syllable is not composed merely of letters and synthesis, nor is a house simply of bricks and synthesis; for the synthesis or the mixture does not proceed out of the elements which are put together or mixed (b. 8). The like is true in other cases; *e.g.*, if the threshold is a threshold by position, the position does not proceed out of the threshold, but rather the threshold out of the position. Nor again is man simply animal and biped. If these two are the Matter, there must be something apart from and beyond them, something not itself an element nor proceeding out of an element—the Essence; which is indicated by abstracting from the Matter (b. 13). This, as being the Cause of Existence and of Essence (αἴτιον τοῦ εἶναι καὶ τῆς οὐσίας—b. 14) is what is meant when Essence is spoken of.

This Essence or Form must be eternal; or at least, if destructible, it has never been destroyed; if generable, it has never been generated. For we have shown already that no one either constructs or generates Form: the Hoc Aliquid is constructed; the product of Form and Matter is generated (p. 1043, b. 18). As yet it has not been made clear whether the Essences of destructible things are separable or not: in some cases at least, they certainly are not—in those cases, namely, where there can exist nothing beyond the particular things, as a house or an implement (b. 21). Perhaps, indeed, these are not truly Essences—neither these particular things nor any other things which have come together not by natural process; for we might indicate Nature alone as the Essence in destructible things (τὴν γὰρ φύσιν μόνην ἄν τις θείη τὴν ἐν τοῖς φθαρτοῖς οὐσίαν) b. 23. Aristotle seems to say in what precedes, that there is no γένεσις or φθορὰ of οὐσία; see Z. p. 1033, b. 17. But how is this to be reconciled with K. p. 1060, b. 18: οὐσίας μὲν γὰρ πάσης γένεσίς ἐστιν, στιγμῆς δ' οὐκ ἔστιν? See Schwegler's Comm. explaining γιγνόμενον and φθειρόμενον, Pt. II. pp. 82, 83.)

Hence we see that the difficulty started by Antisthenes and others equally unschooled (ἀπαίδευτοι) is not without pertinence. They say that, as a definition is a sentence of many words, predicating something of something, so you cannot define *Quid est:* you can only define and inform persons *Quale Quid est:* you can

only tell people what the definiend is like, not what it is in itself: you can tell them that silver is like tin, but you cannot tell what silver is. Upon this theory, definition may be given of Compound Essence, whether perceivable or cogitable; but not of the *primordia* of which the compound consists. The definition must predicate a something, which is of the nature of Form, of another something, which is of the nature of Matter (p. 1043, b. 31).

If Essences are (as the Platonists say) in a certain sense Numbers, they are so in *this* sense; not (as these philosophers affirm) in the character of assemblages of Monads. For the definition is a sort of number, divisible into indivisible units; and the number is so likewise. If you add any thing to, or deduct any thing from, a number (let the thing added or deducted be never so small), it will be no longer the same number; in like manner, neither the definition nor the *τ.η.ε.*, will be the same, if any thing be added or subtracted (p. 1044, a. 1). Each number must have something which makes its component units coalesce into one number, though the Platonic philosophers cannot tell what that something is; either the units are a mere (uncemented) heap, or else you must say what is that something which makes them *one* out of many (a. 5). The definition also is one; yet these philosophers cannot explain what makes it one. The units of the number and that of the definition, is to be explained in the same way, and that of the Essence also; not as a monad or a point, but in each case like an Entelechy and a peculiar nature (*οὐχ, ὡς λέγουσί τινες, οἷον μονάς τις οὖσα ἢ στιγμή, ἀλλ' ἐντελέχεια καὶ φύσις τις ἑκάστη*—a. 9). A given number admits of no degrees, more or less; neither does a given Essence, unless it be taken embodied in Matter (a. 10).

Respecting the Material Essence (*περὶ δὲ τῆς ὑλικῆς οὐσίας*—p. 1044, a. 15), we must not forget that, if there be one and the same First Matter common as a principle to all Generata or Fientia, there is nevertheless a certain Matter special or peculiar (proximate) to each (*ὅμως ἔστι τις οἰκεία ἑκάστου*—a. 18; *οἰκεία καὶ προσεχής*—Alexander). Thus the Materia Prima of phlegm is, sweet or fat things; that of bile is, bitter things and such like. Perhaps these two come both from the same Matter; and there are several different Matters of the same product, in cases where one Matter proceeds from another. Thus phlegm proceeds from fat and sweet, if fat proceeds from sweet; and even from bile, if bile be analysed into its First Matter from whence phlegm may proceed by a different road (a. 23). One thing may proceed from another in two different ways: either D may proceed from C, because C is its immediate Matter, already performed up to a certain point, and thus on the way to a perfectly formed state: or D may proceed from C, after the destruction of C and the resolution of C into its Materia Prima (*διχῶς γὰρ τόδ' ἐκ τοῦδε, ἢ ὅτι πρὸ ὁδοῦ ἔσται ἢ ὅτι ἀναλυθέντος εἰς τὴν ἀρχήν*—a. 24). From one and the same Matter different products may proceed, if the moving cause be different: from the same wood there may proceed a box or a bed. What product shall emerge does not, however, depend only upon the Moving Cause, but often upon the Matter also; thus a saw cannot be made out of wool or wood. If the same product can proceed out of different Matter, this is evidently because the Art or Moving Cause is the same: if this last be different, and the Matter different also, the product will of course be different (p. 1044, a. 32).

When a man asks us, What is the Cause? we ought to reply, since the word has many senses, by specifying all the causes which can have a bearing on the case (p. 1044, a. 34). Thus, What is the Cause of man, as Matter? Perhaps the katamenia. What, as Movent? Perhaps the seed. What, as Form? The *τ.η.ε.* What, as *οὗ ἕνεκα*? The End. These two last are perhaps both the same (a. 36). Moreover we ought to make answer by specifying the proximate causes (not the remote and ultimate). Thus, What is the Matter of man? We must answer by specifying the proximate matter; not fire and earth, the ultimate and elemental (b. 2).

This is the only right way of proceeding in regard to Essences natural and generable; since the Causes are many, and are what we seek to know. But the case is different in regard to Essences natural, yet eternal. Some of these last perhaps have no Matter at all; or at least a different Matter, having no attribute except local moveability (b. 8. Alexander says in explanation: *λέγει δὲ τὴν ξύμπασαν τῶν ὀκτὼ σφαιρῶν ἐνάδα—ὕλην οὐ γεννητὴν καὶ φθαρτὴν ἀλλὰ μόνον κατὰ τόπον κινητήν*—p. 527, 20-25, Bon.).

Again, in regard to circumstances which occur by Nature, but not in the way of Essence, there is no Matter at all: the subject itself is the Essence. Thus in regard to an eclipse: What is its Cause? What is its Matter? There is no Matter, except the moon which is affected in a certain way. What is the Cause, as Movent—here light-destroying? The earth. Perhaps there is no *οὗ ἕνεκα*

in the case. But the Cause in the way of Form is the rational explanation or definition; and this must include a specification of the Movent Cause, otherwise it will be obscure. Thus, the eclipse is, privation of light; and, when you add—by the earth intervening, you then specify the Movent, and make your definition satisfactory (b. 15).

In defining sleep we ought to say what part of the system is first affected thereby; but this is not clear. Shall we indicate only the animal (as substratum)? But this is not enough. We shall be asked, What part of the animal? Which part first? The heart, or what other part? Next, by what Cause? Lastly, how is the heart affected, apart from the rest of the system? To say—Sleep is a certain sort of immobility, will not be a sufficient definition. We must specify from what primary affection such immobility arises (p. 1044, b. 20).

Since some things exist, and do not exist, without generation or destruction (as Forms, and Points, if there be such things as Points), it is impossible that all Contraries can be generated out of each other, if every generation be both *aliquid* and *ex aliquo*. *Albus homo ex nigro homine* must be generated in a different way from *album ex nigro*. Now Matter is only to be found in those cases where there is generation and change into each other; in other cases, where no change takes place, there is no Matter. There is a difficulty in understanding how the Matter of each substance stands in regard to the contrary modifications of that substance (p. 1044, b. 29). If the body is potentially healthy, and if disease is the contrary of health, are we to say that both these states are potential? Is water potentially both wine and vinegar? Or are we to say rather that the body is the Matter of health, and that water is the Matter of wine, in the way of acquisition by nature and by taking on the Form to which it tends; and that the body is the Matter of sickness, and wine the Matter of vinegar in the way of privation and of destruction contrary to nature (b. 34)? However, there is here some difficulty: Since vinegar is generated out of wine, why is not wine the Matter of vinegar, and potentially vinegar? Why is not the living man potentially a corpse? Is it not rather the truth, however, that these are accidental or contra-natural destructions (κατὰ συμβεβηκὸς αἱ φθοραί—b. 36, *i.e.*, not in the regular appetency and aspirations, according to which the destruction of one Form gives place to a better); and that though such destruction the same Matter which belonged to the living man becomes afterwards the Matter of the corpse; likewise the Matter of wine becomes, through the like destruction, Matter of vinegar—by a generation like that of night out of day? Changes of this sort must take place by complete resolution into the original Materia Prima (εἰς τὴν ὕλην δεῖ ἐπανελθεῖν —a. 3); thus, if a living animal comes out of a dead one, the latter is first resolved into its elements, and then out of them comes the living animal. So vinegar is first resolved into water, then out of the water comes wine (a. 5).

We shall now revert to the difficulty recently noticed, about Definitions and Numbers. What is the cause that each number and each definition is One? In all cases where there are several parts not put together as a mere heap, but where there is a Whole besides the parts, there must be some cause of this kind, With some bodies, contact is such cause; with others, viscosity (γλισχρότης —p. 1045, a. 12), or some other affection. But the definition is one complex phrase, not by conjunction like the Iliad, but One by being the definition of one subject (a. 14). Now what is it which makes the subject man, One? Why is he One and not Many, say animal and a biped—more especially if there exist, as the Platonists say, a Self-animal and a Self-biped? Why are not these two αὐτά the man (διὰ τί γὰρ οὐκ ἐκεῖνα αὐτὰ ὁ ἄνθρωπός ἐστι;—a. 17), so that individuals are men by participation not of one Self-man, but of the two — Self-animal, Self-biped? On this theory altogether, it would seem that a man cannot be One, but must be Many—animal and biped. It is plain that in this way of investigation the problem is insoluble.

But if, as *we* say (p. 1045, a. 23), there be on one side Matter, on the other side Form — on one side that which is in Potency, on the other side that which is in Act (a. 24)—the problem ceases to be difficult. The difficulty is the same as it would be if the definition of *himation* were, round brass: the word *himation* would be the sign of that definition, and the problem would be, What is the Cause why round and brass are One? But the difficulty vanishes, when we reply that one is Matter, the other Form. And, in cases where generation intervenes, what is the Cause why the potential Ens is actual Ens, except the Efficient (παρὰ τὸ ποιῆσαν—a. 31)? There is no other Cause why the sphere in potency is a sphere in actuality: such was the τ.η.ε. of each (τοῦτ' ἦν τὸ τ.η.ε. ἑκατέρῳ—a. 33). Of Matter there are two varieties. the Cogitable and the Perceivable; and, in the Definition, a part is always Matter, a part is Form or Energy; as when we define

the circle—a plane figure. (Aristotle argues:—On the Platonic theory that Ideas or Forms are Entia, separate from particulars, self-existent, and independent of each other, no cause can be assigned for the coalescence of any two or more of them into one; *e.g.* animal and biped, into man. But upon my theory, Form and Matter, Power and Act, are in there own nature relative to each other. It is their own inherent nature to coalesce into one, or for Power to pass into Act. This is the cause of their unity: no other cause can be found or is necessary. See Alexander, p. 531.)

In those cases where there is no Matter, either cogitable or perceivable, as in the Categories, Hoc Aliquid, Quale, Quantum, &c., each of them is, in itself and at once, both Ens and Unum (p. 1045, b. 2). Hence neither Ens nor Unum is included in the Definitions, and the τ.η.ε. is, in itself and at once, both Ens and Unum. No other cause can be assigned why each of these is Ens and Unum; each of them is so, at once and immediately, yet not as if they were all included in Ens or Unum as common genera; nor as if they were apart and separable from particulars (b. 7).

Philosophers, who do not adopt this opinion, resort to various phrases, all unsatisfactory, to explain the coalescence or unity of the elements included in the Definition. Some call it μέθεξις, but they give no cause of the μέθεξις; others συνουσία, or σύνδεσμος, or σύνθεσις—of soul with body, as definition of life. But we might just as well use these phrases on other occasions, and say that to be well was a synthesis of the soul with health; that the brazen triangle was a σύνδεσμος of brass with triangle; that white was a synthesis of superficies with whiteness (p. 1045, p. 15). These phrases carry no explanation: and these philosophers get into the difficulty by taking a wrong point of departure. They first lay down Power as different from Entelechy, and then look for an explanation which makes them one (αἴτιον δ' ὅτι δυνάμεως καὶ ἐντελεχείας ζητοῦσι λόγον ἑνοποιὸν καὶ διαφοράν — p. 1045, b. 16. Schwegler observes that the two last words are loosely put, and that the clear words to express what Aristotle means would be: ζητοῦσι λόγον ἑνοποιὸν ὑποτιθέντες διαφοράν—Comm. II. p. 154.). But the truth is that Power and Entelechy are not essentially two, but only different aspects of one and the same. The Last Matter and the Form are the same; but the first is in potency, the second in perfect actuality ("Stoff und Form, Potenzielles und Actuelles, sind eins und dasselbe auf verschiedenen Entwicklungsstufen" — Schwegler II. p. 151). To enquire in any particular case what is the cause of this One, is the same as to enquire generally the cause of Unity. Each thing is a certain One: the Potential and the Actual are One, in a certain way (b. 20). So that no other Cause can be found except the Movent or Efficient —that which moved the matter out of Potency into Actuality. As to those things which have no Matter, each of them is One immediately and *per se* (b. 23).

BOOK Θ.

In discriminating the meanings of Ens, we noticed one κατὰ δύναμιν καὶ ἐνέργειαν (apart from Ens according to the Categories). We shall now proceed to discuss these two terms δύναμις and ἐντελέχεια = ἐνέργεια (p. 1045, b. 35).

It is elsewhere mentioned (Δ. p. 1019) that δύναμις has many senses, of which some (like the geometrical, &c.) are equivocal or metaphorical, so that we shall pass them over here (p. 1046, a. 6). But there is one first and proper sense of δύναμις, from which many others diverge in different directions of relationship or analogy (a. 10). That first and proper sense is—a principle of change *in alio vel quatenu aliud*, or a principle of change *ab alio vel quatenus aliud* (ἀρχὴ μεταβολῆς ἐν ἄλλῳ ἢ ᾗ ἄλλο—ἀρχὴ μεταβολῆς ὑπ' ἄλλου ἢ ᾗ ἄλλο—a. 11, 14. The same definition is given in terms somewhat different at p. 1048, a. 28: τοῦτο λέγομεν δυνατὸν ὃ πέφυκε κινεῖν ἄλλο ἢ κινεῖσθαι ὑπ' ἄλλου, ἢ ἁπλῶς ἢ τρόπον τινά. This Aristotle calls ἡ κατὰ κίνησιν δύναμις—expressed by Bonitz, Comm., p. 379: "agendi patiendive nisum quendam."). The notion of δύναμις however extends more widely than this first sense of δύναμις κατὰ κίνησιν. It includes other cases, as where we say that Hermes is δυνάμει in the wood, and that the half foot is δυνάμει in the whole foot (p. 1048, a. 33; Bonitz distinguishes this last sense as Möglichkeit, from the first sense as Vermögen, p. 379).

We begin by speaking about the first and proper sense—δύναμις ἡ κατὰ κίνησιν. One variety thereof is, when a thing has power of being passively affected so and so—when there resides in the thing a principle of passive change (ἀρχὴ μεταβολῆς παθητικῆς—p. 1046, a. 13) by something else or by itself *quatenus* something else. (These last words are added because a sick man has the δύναμις of being cured either by a physician, or by himself if he be a physician; but then in this last case

he is to be looked upon in two different characters, as physician and as patient: he cures himself as physician, he is cured as patient.) Another variety of δύναμις κατὰ κίνησιν is, when a thing has power of resisting change for the worse or destruction by any exterior principle of change (a. 14); as hardness in iron. Sometimes this δύναμις is restricted to the cases in which a person can do the thing in question well: no man is said to have the power of speaking or singing unless he can perform these functions pretty well (a. 18).

In all these varieties, the general notion of δύναμις κατὰ κίνησιν is included (p. 1046, a. 16). The active and passive δύναμις are, in one sense, one and the same; in another sense, distinct and different. For one of them resides in the patient, the other in the agent (a. 27): sometimes the two come by nature together in the same thing; yet the patient does not suffer from itself as patient, but from itself as agent. Impotence (ἀδυναμία) is the privation contrary to this δύναμις. Privation has many different meanings (a. 32).

Among these principles of change, some reside in the inanimate substances, others in the animated; not only in the soul generally, but also in the rational branch of the soul (p. 1046, a. 38). Accordingly some δυνάμεις are Rational, others Irrational. All arts and constructive sciences are δυνάμεις (or ἀρχαὶ μεταβλητικαὶ ἐν ἄλλῳ ἢ ᾗ ἄλλο—b. 3). In the rational capacities, the same capacity covers both contraries; in the irrational, each bears upon one of the two contraries exclusively; thus, fire will only heat but not chill, while the medical art will produce either sickness or health. The reason is, that Science is based upon rational explanations or definitions; and the same rational explanation declares both the thing itself and the privation thereof; though not indeed in the same manner: it declares, in a certain way, both together, and, in a certain way, chiefly the positive side (b. 10). Accordingly these sciences are sciences of both the contraries at once: namely, *per se*, of one side of the Antiphasis; not *per se*, of the other side; since the rational explanation also declares, directly and *per se*, only one side, while it declares the other side in a certain way indirectly, mediately, *per accidens*—*i.e.*, by negation and exclusion (ἀποφάσει καὶ ἀποφορᾷ—b. 14). For the Contrary is the highest grade of privation; and this is the exclusion of one side of the alternative (ἡ γὰρ στέρησις ἡ πρώτη τὸ ἐναντίον, αὕτη δ' ἀποφορὰ θατέρου—p. 1046 b. 15; Bonitz says that τὸ ἐναντίον is the subject of this proposition, and ἡ στέρησις the predicate). Both of two contraries cannot reside, indeed, in the same subject; but Science is a δύναμις through rational explanation or reason in the soul which has within it a principle of motion; accordingly the soul can bring to pass either of the two contraries, through reference to the same rational notion or explanation which comprises both (b. 22).

The Megaric philosophers recognize no δύναμις apart from ἐνέργεια; affirming that no one has any power, except at the moment when he is actually exercising it. These philosophers are wrong (for various reasons indicated: p. 1046, b. 30—p. 1047, a. 20). Power and Act are distinct. A particular event is possible to happen, yet it does not happen; or possible not to happen, yet it does happen (p. 1047, a. 22). That is possible, to which, if the act supervene whereto such possibility relates, nothing impossible will ensue (a. 25). The name ἐνέργεια, appended to that of ἐντελέχεια (ἡ πρὸς τὴν ἐντελέχειαν συντιθεμένη—a. 30), has come to be applied to other things chiefly from reference to motions; for motion is *par excellence* ἐνέργεια. Hence Non-Entia are never said to be moved, though other predicates may be applied to them: we may call them διανοητά and ἐπιθυμητά, but never κινούμενα; for, if we did, we should be guilty of contradiction, saying that things which are not ἐνεργείᾳ are ἐνεργείᾳ. Among the Non-Entia there are some which are Entia δυνάμει: we call them Non-Entia, because they are not ἐντελεχείᾳ (b. 2).

If the definition above given of τὸ δυνατόν be admitted, we see plainly that no one can say truly: This is possible, yet it will never happen (p. 1047, b. 3, seq.).

Among all the various δυνάμεις, some are congenital, such as the perceptive powers (αἰσθήσεων—p. 1047, b. 31); others are acquired by practice, such as playing the flute; others by learning, like the arts: these two last varieties we cannot possess without having previously exercised ourselves in them actively (b. 34), but the others, which are more of a passive character, we may possess without such condition. This distinction coincides with that which was drawn previously between the rational and the irrational δυνάμεις or capacities: the rational capacities belonging only to a soul, and to the rational branch thereof. Now every δυνατόν has its own specialities and conditions: it is itself a given something, and it is surrounded with concomitants of special time, place, neighbourhood, &c. (p. 1048, a. 1). The irrational capacities must necessarily pass into reality, whenever the active and the

passive conditions come together, because there is but one reality to arise; but the rational capacities not necessarily, because they tend to either one of two contrary realities, both of which cannot be produced. Which of the two contraries shall be brought to reality, will depend upon another authority—the appetency or deliberate resolution of the soul: to whichsoever of the two, each possible, such sovereign appetency tends, that one will be brought to pass, when agent and patient come together and both are in suitable condition (a. 11); and under those circumstances, it will *necessarily* (ἀνάγκη—a. 14) be brought to pass. We need not formally enunciate the clause—"if nothing extrinsic occurs to prevent it": for this is already employed in the definition of δύναμις which is never affirmed as absolute and unconditional, but always under certain given conditions (a. 18: ἔστι δ' οὐ πάντως, ἀλλ' ἐχόντων πῶς). Accordingly the agent will not be able to bring about both sides of the alternative at once, even though appetite or deliberate resolution may prompt him to do it (a. 21).

Having thus gone through the variety of δύναμις called ἡ κατα κίνησιν, we shall now give some explanations of ἐνέργεια; in the course of which we shall be able to illustrate by contrast, the other variety of δύναμις, which was indicated above (p. 1048, a. 30). 'Ενέργεια is used when the thing exists, not δυνάμει: meaning by δυνάμει such as Hermes in the wood or the half-yard in the whole yard. We shall explain our meaning, by giving an induction of particulars; for definition cannot be given of every thing. We must group into one view the analogies following (οὐ δεῖ παντὸς ὅρον ζητεῖν, ἀλλὰ καὶ τὸ ἀνάλογον συνορᾶν—a. 37): As the person now actually building is to the professional builder not so engaged; as the animal awake is to the animal asleep; as the animal seeing is to the animal possessed of good eyes but having them closed; as that which is severed from matter is to matter (τὸ ἀποκεκριμένον—b. 3); as the work completed is to the material yet unworked;—so is ἐνέργεια to δύναμις. The antithesis is not similar in all these pairs of instances, but there is a relationship or analogy pervading all (ὡς τοῦτο ἐν τούτῳ ἢ πρὸς τοῦτο, τόδ' ἐν τῷδε ἢ πρὸς τόδε—b. 8). In some of the pairs, the antithesis is the same as that of κίνησις πρὸς δύναμιν; in others it is the same as that of οὐσία πρός τινα ὕλην (b. 9). In one member of each pair, we have ἡ ἐνέργεια ἀφωρισμένη; in the other τὸ δυνατόν (b. 5—ἐνέργεια here is *reality severed and determinate*, as contrasted with δύναμις *potentiality huddled together and indeterminate*.—See Schwegler's note: "Potenzialität und Aktualität sind reine Verhältnissbegriffe"—p. 172, seq.). But in all the above-named examples, that which is now δυνάμει may come actually to be ἐνεργείᾳ: the person now sleeping may awake; the person whose eyes are now closed may open them and see; the Hermes now in the wood may be brought out of the wood and exist as a real statue. It is otherwise with The Infinite, Vacuum, &c. These exist δυνάμει only, and can never come to exist ἐνεργείᾳ, or independently. The Infinite can exist ἐνεργείᾳ only for our cognition. The fact that the bisection thereof is never exhausted—that we may go on dividing as long as we choose—gives to the potential Infinite a certain actuality, though it cannot be truly separated (b. 16).

We must farther explain in what cases it is proper to say that a thing is δυνάμει, and in what cases it is not proper. You cannot properly say that earth is potentially a man: you may perhaps say that the semen is potentially a man: yet even *this* not certainly, since other conditions besides semen are required (p. 1049, a. 2). The physician cannot cure every patient, yet neither is the cure altogether a matter of chance (ἀπὸ τύχης—a. 4): there is a certain measure of cure possible, and that is called τὸ ὑγιαῖνον δυνάμει. The definition thereof, taken from the side of the agent, would be—that which will come to pass if he wills it, without any impediment from without; from the side of the patient—when no impediment occurs from within him (a. 8). In like manner, a house exists δυνάμει, when all the matter for it is brought together, without need either of addition or subtraction or change, and when there is no internal impediment; and so with other products of art, where the principle of generation is extrinsic to themselves. In natural products, where the principle of generation is intrinsic, we treat them as potentially existing, when this principle is in a condition to realize itself through itself, assuming no external impediments to interfere. Thus we do not call the semen potentially a man, because, before it becomes such, it must undergo change in something else, and therefore stands in need of some other principle; we call it so only when it is in such conditions that its own principle suffices. Earth is not said to be a statue δυνάμει, until it has first been changed into brass (a. 17). We call the product not by the name of the Matter itself, but by an adjective appellation derived from the next adjacent Matter; thus we call a box, not

wood, but wooden: wood is then a box δυνάμει. But we say this only of the proximate or immediate Matter, not of the remote or primary Matter. We must go back through successive stages to the first or most remote Matter; thus wood is not earth, but earthy: earth therefore is potententially wood. The earth may be aeriform; the air may be fiery; the fire has no analogous adjective whereby it can be called, and is thus the first or last Matter. But it is not said to be potentially any thing except the σύνθετον combined with Form immediately above it. Matter may be either proximate or remote: Potentiality is affirmed only of the proximate Matter.

Since all the different meanings of Prius have been enumerated and distinguished, it is plain that in all those meanings Actuality is *prius* as compared with Potentiality; whether the δύναμις be ἀρχὴ μεταβλητικὴ (= κινητικὴ) ἐν ἄλλῳ ᾗ ἄλλο, like Art; or ἀρχὴ κινητικὴ ἢ στατικὴ ἐν αὐτῷ ᾗ αὐτό, like Nature (p. 1049, b. 5-10). Actuality is *prius* both λόγῳ and οὐσίᾳ: it is also *prius* χρόνῳ in a certain sense, though not in a certain other sense.

It is *prius* λόγῳ, because the Actual is included in the definition of the Potential; that is, it must be presupposed and foreknown, before you can understand what the Potential is (p. 1049, b. 17). You explain οἰκοδομικός or ὁρατικός by saying that he is δυνάμενος οἰκοδομεῖν ἢ ὁρᾶν: you explain ὁρατόν by saying that it is δυνατὸν ὁρᾶσθαι: τὸ δυνατόν, in its first and absolute meaning, is δυνατόν because it may come into Actuality (b. 13).

It is *prius* χρονῷ in the sense that the Potential always presupposes an Actual identical *specie*, though not identical *numero*, with that Actual to which the Potential tends. Take a man now existing and now seeing, or corn now ripe in the field: these doubtless, before they came into their present condition, must have pre-existed in Potentiality; that is, there must have pre-existed a certain matter—seed or a something capable of vision—which at one time was not yet in a state of Actuality (p. 1049, b. 23). But prior to this matter there must have existed other Actualities, by which this matter was generated: the Actual is always generated out of its Potential by a prior Actual, *e.g.*, a man by a man, a musical man by a musical man; there being always some prior movent, which must be itself already in Actuality (b. 27). We have already declared that every thing generated is something generated out of something, and by something which is identical in species with the thing generated (b. 29). Hence it seems that there can be no builder who has built nothing, no harper who has never harped; for the man who is learning to harp learns by harping (b. 32); which gave occasion to the sophistical puzzle —That one, who does not possess the knowledge, will nevertheless do that to which the knowledge relates. The learner does not possess the knowledge; yet still he must have possessed some fragments of the knowledge: just as, in every thing which is in course of generation, some fraction must have been already generated; in every thing which is moved, some fraction has been already moved (b. 36).

Lastly, Actuality is *prius* as compared with Potentiality (not merely λόγῳ, καὶ χρόνῳ ἔστιν ὥς, but also) οὐσίᾳ (p. 1050, a. 4). In the first place, that which is latest in generation is first in Form and in Essence; a man compared with a child, man as compared with semen. Man already possesses the Form, semen does not. Next, every thing generated marches or gradually progresses towards its principle and towards its end. The principle is the οὗ ἕνεκα, and the generation is for the sake of the end. Now the end or consummation is Actuality, and for the sake of this the Potentiality is taken on (λαμβάνεται—a. 10). Animals do not see in order that they may have sight; they have sight in order that they may see: they do not theorize in order that they may possess theoretical aptitude, but the converse; except indeed those who are practising as learners. Moreover, Matter is said to exist potentially, because it may come into Form; but, when it exists actually, it is then in Form (a. 16). (Alexander says: ὥστε κἂν τούτῳ προτέρα (ἡ ἐνέργεια) ὡς ἐφετὸν καὶ τάσσον καὶ εἰς κόσμον ἄγον δυνάμεως —p. 559, 10, Bon.) The case is the same where the end is nothing beyond a particular mode of motion (*e.g.*, dancing): the dancing-master has attained his end when he exhibits his pupil actually dancing. In natural productions this is no less true than in artificial: Nature has attained her end, when the product comes into ἐνέργεια; that is, when it is actually at work, from whence the name ἐνέργεια is derived (τὸ γὰρ ἔργον τέλος, ἡ δὲ ἐνέργεια τὸ ἔργον—καὶ συντείνει πρὸς τὴν ἐντελέχειαν—a. 23).

In some cases (as we have often remarked) the ultimatum is use, without any ulterior product distinct from the use, *e.g.*, the act of seeing is the ultimatum of the visual power (p. 1050, a. 24); in other cases there is something ulterior and distinct, as a house from the building power. In the former of these

cases, Actuality is the end of δύναμις; in the latter it is more the end than δύναμις. (Ὅμως οὐθὲν ἧττον ἔνθα μὲν τέλος ἔνθα δὲ μᾶλλον τέλος τῆς δυνάμεώς ἐστιν· ἡ γὰρ οἰκοδόμησις ἐν τῷ οἰκοδομουμένῳ, καὶ ἅμα γίγνεται καὶ ἔστι τῇ οἰκίᾳ—a. 29. This passage is obscure: see the comments of Alexander, with the notes of Schwegler and Bonitz, who accuse Alexander of misunderstanding it; though it appears to me that neither of them is quite clear. I understand Aristotle to reason as follows:—Ὅρασις is the τέλος, the ἐνέργεια, the consummation of the visual power called ὄψις; but οἰκοδόμησις is not the τέλος, the ἐνέργεια, the consummation of the building power called οἰκοδομική. This last has its τέλος, ἐνέργεια, consummation, in the ulterior product οἰκία. Nevertheless οἰκοδόμησις, residing as it does ἐν τῷ οἰκοδομουμένῳ, and coming into existence simultaneously with the house, is more the end, more akin to the end or consummation, than the building power called οἰκοδομική.)

In cases where there is an ulterior product beyond and apart from the exercise of the power, the Actuality (consummation) resides in that product (p. 1050, a. 31). In cases where is no such ulterior product, the Actuality resides in the same subject wherein the power resides. Thus sight resides in him who sees, and life in the soul. Hence also happiness resides in the soul; for happiness is a certain kind of life (b. 1).

It is thus plain that Actuality is the Essence and the Form. and that it is *prius* τῇ οὐσίᾳ compared with Potentiality. And, as has been already remarked, one Actuality always precedes another, in time, up to the eternal Prime Movent (p. 1050, b. 5). Moreover, ἐνέργεια is *prius* to δύναμις in respect to speciality and dignity (κυριωτέρως—b. 6). For eternal things are *priora* in essence to destructible things, and nothing is eternal δυνάμει, as the reason of the case will show us (b. 8).

All Potentiality applies at once to both sides of the Antiphasis—to the affirmative as well at to the negative. That which is not possible, will never occur to any thing; but every thing which is possible may never come to Actuality (τὸ δυνατὸν δὲ πᾶν ἐνδέχεται μὴ ἐνεργεῖν—p. 1050, b. 10). That which is possible to be, is also possible not to be. Now that which is possible not to be, may perhaps not be (ἐνδέχεται μὴ εἶναι—b. 13); but that which may not be, is destructible, either absolutely (that is, in respect to Essence), or in respect to such portions of its nature as may not be, that is, in respect to locality or quantity or quality. Accordingly, of those things which are absolutely, or in respect to Essence, indestructible, nothing exists δυνάμει absolutely or in respect to Essence, though it may exist δυνάμει in certain respects, as in respect to quality or locality; all of them exist ἐνεργείᾳ (b. 18). Nor does any thing exist δυνάμει, which exists by necessity; yet the things which exist by necessity are first of all (*i.e.*, *priora* in regard to every thing else); for, if they did not exist, nothing would have existed. Moreover, if there be any Eternal Motion, or any Eternal Motum, it cannot be Motum δυνάμει except in respect to whence and whither; in that special respect, it may have Matter or Potentiality (b. 21).

Accordingly, the Sun, the Stars, and the whole Heaven, are always at work, and there is no danger of their ever standing still, which some physical philosophers fear (ἀεὶ ἐνεργεῖ ὁ ἥλιος—p. 1050, b. 22); nor are they fatigued in doing this. Motion with them is not a potentiality of both members of the Antiphasis, either to be moved or not to be moved. If the fact were so—if their Essence were Matter and Power, and not Act—the perpetual continuity of (one side of the alternative) motion would be toilsome to them; but it is not toilsome, since Actuality is their very Essence (b. 28). Likewise mutable things (which are destructible), such as earth and fire, imitate these indestructible entities, being ever at work; for these elements possess motion by themselves and in themselves, each changing into another (b. 30; compare De Gen. et Corr. p. 337, a. 2). But the other δυνάμεις are all potentialities of both sides of the Antiphasis, or of both alternatives. The rational δυνάμεις can cause motion in such and such way, or not in such and such way; the irrational δυνάμεις may be present or absent, and thus embrace both sides of the alternative (b. 33).

Hence we draw another argument for not admitting the Platonic doctrine of Ideas, affirmed by the dialecticians (οἱ ἐν τοῖς λόγοις—p.1050,b. 35). If there existed such Ideas, they would be only δυνάμεις in respect to the ἐνέργεια existing in their particular embodiments. Thus an individual cognizing man would be much more cognizant than αὐτοεπιστήμη; a particular substance in motion would be much more in motion than κίνησις or αὐτοκίνησις itself. For αὐτοεπιστήμη or αὐτοκίνησις are only δυνάμεις to the ἐπιστῆμόν τι or the κινούμενόν τι, which belong to ἐνέργεια (b. 36). (We may remark that in the Platonic Parmenides, p. 134, C., an argument the very opposite to this is urged. It is there contended that Cognition *per se* (the Idea) must be far more

complete and accurate than any cognition which *we* possess.)

It is thus plain that *ἐνέργεια* is *prius* to *δύναμις*, and to every principle of change (p. 1051, a. 2). It is also better and more honourable than *δύναμις* even in the direction of good. We have already observed that *δύναμις* always includes both of two contraries, in the way of alternative: one of these must be the good, the other the bad. Now the actuality of good is better than the potentiality of good; the actuality of health is better than the potentiality of health, which latter must also include the potentiality of sickness, while the actuality of health excludes the actuality of sickness. On the other hand, the actuality of evil is worse than the potentiality of evil; for the potentiality is neither of the two contraries or both of them at once (a. 17). Hence we see that evil is nothing apart from particular things; since it is posterior in its nature even to Potentiality: there is therefore neither evil, nor error, nor destruction, in any of the principia or eternal Essences (a. 19). (The note of Bonitz here is just:—"Quem in hac argumentatione significavi errorem—judicium morale de bono et malo immisceri falso iis rebus, a quibus illud est alienum—ei non dissimilem Arist. in proximâ argumentatione, si recte ejus sententiam intelligo, videtur admisisse, quum quidem malum non esse *παρὰ τὰ πράγματα*, seorsim ac per se existens, demonstrare conatur." Aristotle here as elsewhere confounds the idea of Good, Perfection, Completeness, &c., with that of essential Priority. But what he says here—*οὐκ ἔστι τὸ κακὸν παρὰ τὰ πράγματα*—can hardly be reconciled with what he says in the Physica (pp. 189, 191, 192) about *στέρησις*, which he includes among the three *ἀρχαί*, and which he declares to be *κακοποιός*—p. 192, a. 15).

Lastly, we discover geometrical truths by drawing visible diagrams, and thus translating the Potentialities into Actuality. If these diagrams were ready drawn for us by nature, there would be no difficulty in seeing these truths; but, as the case stands, the truths only inhere in the figures potentially (p. 1051, a. 23: *εἰ δ' ἦν διῃρημένα, φανερὰ ἂν ἦν· νῦν δ' ἐνυπάρχει δυνάμει*). If the triangle had a line ready drawn parallel to its side, we should have seen at once that its three angles were equal to two right angles. Potential truths are thus discovered by being translated into Actuality. The reason of this is, that the Actuality is itself an act of cogitation, so that the Potentiality springs from Actuality (*αἴτιον δ' ὅτι νόησις ἡ ἐνέργεια· ὥστ' ἐξ ἐνεργείας ἡ δύναμις*—a. 30. It is not therefore true—what the Platonists say—that the mathematical bodies and their properties are *οὐσίαι καὶ ἐνεργείαι*: they are only *δυνάμεις*, and they are brought into being by our cogitation or abstraction). It is true that each individual diagram drawn is posterior to the power of drawing it (a. 32).

Having gone through the discussion of Ens according to the first of the ten Categories, and of Ens Potential and Actual, we have now to say something about Ens as True or False in the strictest sense of the words (*τὸ δὲ κυριώτατα ὂν ἀληθὲς ἢ ψεῦδος*—p. 1051, b. 1). These words mean, in reference to things, either that they are conjoined or that they are disjoined. To speak truth is to affirm that things which are disjoined or conjoined in fact, are disjoined or conjoined; to speak falsely, the reverse. The appeal is to the fact: it is not because we truly call you white, that you are white; it is because you really are white, that we who call you white speak truth (b. 9). If there are some things which are always conjoined, others always disjoined, others again sometimes conjoined sometimes disjoined, propositions in reference to the first two classes affirming conjunction or disjunction, will be always true or always false, while in reference to the third class propositions may be either true or false, according to the case (b. 10).

But what shall we say in regard to things Uncompounded? In respect to them, what is truth or falsehood—to be or not to be? (*τὰ ἀσύνθετα*—p. 1051, b. 18). If we affirm white of the wood, or incommensurability of the diagonal, such conjunction of predicate and subject may be true or false; but how, if there be no predicate distinct from the subject? Where there is no distinction between predicate and subject, where the subject stands alone,—in these cases, there is no truth or falsehood in the sense explained above: no other truth except that the mind apprehends and names the subject, or fails to do so. You either know the subject, or you do not know it: there is no alternative but that of knowledge or ignorance; to be deceived is impossible about the question *Quid est* (*τὸ μὲν θιγεῖν καὶ φάναι ἀληθές, οὐ γὰρ ταὐτὸ κατάφασις καὶ φάσις, τὸ δ' ἀγνοεῖν μὴ θιγγάνειν· ἀπατηθῆναι γὰρ περὶ τὸ τί ἐστιν οὐκ ἔστιν ἀλλ' ἢ κατὰ συμβεβηκός*—b. 25. The last words are thus explained by Bonitz: "nisi forte per abusum quendam vocabuli ipsam ignorantiam dixeris errorem"—p. 411). All these uncompounded subjects exist actually, not potentially: if the latter had been true, they would have been generated and destroyed; but Ens Ipsum (*τὸ ὂν αὐτό*—b. 29) is neither

generated nor destroyed; for, if it had been, it must have been generated out of something. Respecting all those things which exist in Essence and Actuality, you cannot be deceived: you may apprehend them in cogitation, or fail to apprehend them. The essential question respecting them is, whether they exist in such or such manner or not; as it is respecting the One and the Uncompounded—whether being an existent, it exists thus and thus or not (b. 35). Truth consists in apprehending or cogitating them (p. 1052, a. 1); the contrary thereof is non-apprehension of them or ignorance (ἄγνοια), yet not analogous to blindness; for that would be equivalent to having no apprehensive intelligence (ὡς ἂν εἰ τὸ νοητικὸν ὅλως μὴ ἔχοι τις—a. 3; one is not absolutely without νοητικόν, but one's νόησις does not suffice for apprehending these particular objects).

Respecting objects immoveable and unchangeable, and apprehended as such, it is plain that there can be no mistake as to the When (κατὰ τό ποτέ—p. 1052, a. 5; *i.e.*, a proposition which is true of them at one time cannot be false at another time). No man will suppose a triangle to have its three angles equal to two right angles at one time, but not at another. Even in these unchangeables, indeed, a man may mistake as to the What: he may suppose that there is no even number which is a prime number, or he may suppose that there are some even numbers which are prime, others which are not so: but, respecting any particular number, he will never suppose it to be sometimes prime, sometimes not prime (a. 10).

(In respect to the meaning of τὰ ἀσύνθετα—p. 1051, b. 17—Bonitz and Schwegler differ. Bonitz says, Comm. p. 409: "Compositæ quas dicit non sunt intelligendæ eæ quæ ex pluribus elementis coaluerunt, sed eæ potius, in quibus cum substantia conjungitur accidens aliquod, veluti homo albus, homo sedens, diagonalis irrationalis, et similia." Schwegler says, p. 187: "Unter den μὴ συνθεταὶ οὐσίαι versteht Arist. näher diejenigen Substanzen, die nicht ein σύνθετον oder σύνολον sondern ἄνευ ὕλης (οὐ δυνάμει) und schlechthin ἐνεργείᾳ, also reine Formen sind, und als solche kein Werden und Vergehen haben." Of these two different explanations, I think that the explanation given by Bonitz is the more correct, or at least the more probable.)

Book Λ.

We have to speculate respecting Essence; for that which we are in search of is the principles and causes of Essences (p. 1069, a. 18). If we look upon the universe as one whole, Essence is the first part thereof: if we look upon it as a series of distinct units (εἰ τῷ ἐφεξῆς, a. 20), even in that view οὐσία stands first, ποιόν next, ποσόν third; indeed these last are not Entia at all, strictly speaking (a. 21)—I mean, for example, qualities and movements, and negative attributes such as not-white and not-straight; though we do talk of these last too as Entia, when we say *Est non-album.* Moreover Essence alone, and none of the other Categories, is separable. The old philosophers (οἱ ἀρχαῖοι) are in the main concurrent with us on this point, that Essence is *prius* to all others; for they investigated the principles, the elements, and the causes of Essence. The philosophers of the present day (Plato, &c.) declare Universals, rather than Particulars, to be Essences; for the genera are universal, which these philosophers, from devoting themselves to dialectical discussions, affirm to be more properly considered as Principles and Essences (a. 28); but the old philosophers considered particular things to be Essences, as fire and earth, for example, not the common body or Body in general (οὐ τὸ κοινὸν σῶμα—a. 30).

Now there are three Essences. The Perceivable includes two varieties: one, the Perishable, acknowledged by all, *e.g.*, animals and plants; the other Eternal, of which we must determine the elements, be they many or one. There is also the Immoveable, which some consider to be separable (ἄλλη δὲ ἀκίνητος καὶ ταύτην τινὲς εἶναί φασι χωριστήν—p. 1069, a. 33; οὐσία νοητὴ καὶ ἀκίνητος—Schwegler's note): either recognizing two varieties thereof, distinct from each other—the Forms and Mathematical Entia; or not recognizing Forms as separable Entia, but only the Mathematical Entia (a. 36). Now the first, or Perceivable Essences, belong to physical science, since they are moveable or endued with motion; the Immoveable Essences, whether there be two varieties of them or only one, belong to a science distinct from physical. The Perceivable and the Immoveable Essences have no common principles (b. 2).

The Perceivable Essence is subject to change (μεταβλητή). Since change takes place either out of Opposites or out of Intermediates, and not out of every variety of Opposites, but only out of Contraries (ἐκ τῆς οἰκείας ἀποφάσεως, ἐκ

τῆς οἰκείας στερήσεως—Alexander, pp. 644, 645, Bon.; the voice, *e.g.*, is not white, yet change does not take place from voice to white, these being disparates, or of different genera: τὰ γένει διαφέροντα οὐκ ἔχει ὁδὸν εἰς ἄλληλα —I. iv. p. 1055, a. 6), there must of necessity be a certain Substratum which changes into the contrary condition; for contraries do not change into each other. The substratum remains, but the contraries do not remain: there is therefore a third something besides the contraries; and that is Matter (p. 1069, b. 9). Since then the varieties of change are four: (1) γένεσις and φθορά (κατὰ τὸ τί), (2) αὔξησις καὶ φθίσις (κατὰ τὸ ποσόν), (3) ἀλλοίωσις (κατὰ τὸ πάθος or κατὰ τὸ ποιόν), (4) φορά (κατὰ τόπον or κατὰ τὸ ποῦ), each of these changes will take place into its respective contrary: the Matter will necessarily change, having the potentiality of both contraries (b. 14). Ens being two-fold, all change takes place out of Ens Potentiâ into Ens Actu, *e.g.*, out of potential white into actual white; and the like holds for Increase and Decrease. Thus not only may there be generation from Non-Ens accidentally, but all generation takes place also out of Ens; that is, out of Ens Potentiâ, not Ens Actu (b. 20). This Ens Potentiâ is what Anaxagoras really means by his Unum, which is a better phrase than ὁμοῦ πάντα; what Empedokles and Anaxagoras mean by their μῖγμα; what Demokritus means when he says ὁμοῦ πάντα. They mean that all things existed at once potentially, though not actually; and we see that these philosophers got partial hold of the idea of Matter (ὥστε τῆς ὕλης ἂν εἶεν ἡμμένοι—b. 24). All things subject to change possess Matter, but each of them a different Matter; even the eternal things which are not generated but moved in place, possess Matter—not generated, but *from whence whither* (*i.e.*, the Matter of local movement pure and simple—direction: καὶ τῶν ἀϊδίων ὅσα μὴ γεννητὰ κινητὰ δὲ φορᾷ, ἀλλ' οὐ γεννητήν (ὕλην), ἀλλὰ πόθεν ποῖ—b. 26).

Since there are three varieties of Non-Ens (p. 1069, b. 27; Alexander and Bonitz explain this τριχῶς differently), it may seem difficult to determine, out of which among the three Generation takes place. But the answer is, that the Potential Ens is not potential of every thing alike and at haphazard, but potential in each case from something towards something (εἰ δή τι ἔστι δυνάμει, ἀλλ' ὅμως οὐ τοῦ τυχόντος, ἀλλ' ἕτερον ἐξ ἑτέρου—b. 29). Nor is it enough to tell us that all things are huddled together (ὁμοῦ πάντα χρήματα—b. 30); for they differ in respect to Matter or Potentiality. If this were not so, how is it that they are of infinite diversity, and not all One? The Νοῦς (*i.e.*, according to the theory of Anaxagoras) is One; so that, if the Matter were One also, it would become in actuality that which it was at first in potentiality, and the result would be all One and the Same (b. 32).

The Causes are thus three and the Principles are three: the pair of Contraries, one of them Form (λόγος καὶ εἶδος), the other Privation, and the third Matter (p. 1069, b. 35). But we must keep in mind that neither Materia Prima nor Forma Prima is generated. For in all Change, there is something (the Matter) which undergoes change; something by which the change is effected (the Prime Movent, ὑφ' οὗ μέν, τοῦ πρώτου κινοῦντος—p. 1070, a. 1); and something into which the change takes place (the Form). The brass becomes round: but, if both the brass becomes and the round becomes, you will be condemned to an infinite regression: you must stop somewhere (ἀνάγκη δὴ στῆναι—a. 4). Moreover, every Essentia is generated out of another Essentia of the same name and form (ἐκ συνωνύμου—a. 5). All generated things proceed either from Nature, Art, Fortune, or Spontaneity. It is Nature, where the principle or beginning is in the subject itself; it is Art, where the principle or beginning is in something apart from the subject; Fortune is the privation of Art; Spontaneity is the privation of Nature (αἱ δὲ λοιπαὶ αἴτιαι στερήσεις τούτων—a. 9). Essentiæ are threefold: (1) Matter, which appears to be Hoc Aliquid but is not so, for detached members or fragments, simply touching each other without coalescing, are matter and substratum (*i.e.*, prepared for something ulterior); (2) Nature, which is really Hoc Aliquid—a certain definite condition, into which generation takes place (ἡ δὲ φύσις καὶ τόδε τι, εἰς ἥν, καὶ ἕξις τις—a. 12); (3) The Concrete of the two preceding—the individual object called Sokrates or Kallias. In some cases there is no Hoc Aliquid except in this Concrete or Compound; thus in artificial objects or productions, such as a house or health, there is no Form except the Art itself; the ideal house, pre-existing in the mind of the builder, is generated and destroyed in a different sense from the real house. It is in the case of natural objects, if in any case, that there exists a Hoc Aliquid independent of the concrete individual (a. 17).

Hence Plato was not wrong in saying that Forms were co-extensive with natural objects (ὁπόσα φύσει—p. 1070, a. 18), if there are Forms distinct from these

objects: such as fire, flesh, head, which are all properly Matter. The Last Matter (or that which has come most under the influence of Form) belongs to that which is in the fullest sense Essentia (or the individual concrete named Sokrates or Kallias—a. 20). The Moving Causes pre-exist, as real individual beings or objects: the Formal Causes come into existence simultaneously with the individual real compound. When the patient becomes well, then health comes at the same time into existence: when the brazen sphere comes, the sphericity of it comes at the same time (a. 24). Whether any thing of the Form continues after the dissolution of the individual compound, is a problem to be investigated (a. 25). In some cases nothing hinders but what it may continue; for example, the soul may be of such a nature: I do not mean every soul—for every soul perhaps cannot continue—but the Νοῦς or rational soul (a. 27). Still it is plain that this affords no support to the theory of self-existent separate Ideas; for every individual man is begotten by another individual man. In like manner also with respect to the arts; for the medical art affords the Form or rational explanation of health (a. 30; *i.e.*, health is generated, not by the Idea of Health, but by the medical art, or by the artist in whom that art is embodied).

Causes and principles, in one point of view, are different for different subjects; but in another point of view, they are the same for all; that is, if we speak generally and according to analogy (if we confine ourselves to the most general terms, Form, Privation, Matter, &c.). In respect to Essentia, Relatio, and the remainder of the Categories, a difficulty arises to say whether the causes, elements, and principles of all the Categories are the same. It would be strange if they were all the same; because then Essentiæ, as well as Relata, would proceed out of the same causes and elements. For, what can these latter be? They cannot be extra-categorical; since there exists no general class apart from or besides Essentia and the other Categories (p. 1070, b. 1). Nor can any one Category be the element of the others: for the element is *prius* to that of which it is the element. Nor again can Essentia be the element of Relata; nor is any one of the nine Categories the element of Essentia. Again, how is it possible that the elements of all the Categories can be the same? No element can be the same as that compound of which it is an element: neither B nor A can be the same as B A. If, therefore, there were such elements, they must be extra-categorical; which is impossible. Nor can the element in question (the supposed one and the same) be any cogitable, such as Ens or Unum; for every individual Concrete is both Ens and Unum, and the element cannot be identical with the compound put together out of it. Neither Essentia nor Relatio could be said to exist, if Ens were the Element out of which they are composed; but these Categories exist necessarily: therefore there is no one and the same element common to all the Categories (b. 9).

Yet we ought perhaps rather to repeat, what was observed before, that in one sense, the elements of all are the same; in another sense, different. Take for example the perceivable bodies. We find here hot as the Form, cold as the Privation; as Matter, there is that which is, primarily and *per se*, both hot and cold potentially: the hot and the cold are both Essentiæ; likewise other things of which these are the principles, *e.g.*, flesh and bone, which of necessity are different from the principles out of which they proceed (b. 15). Flesh and bone have these elements and principles; other things have other elements and principles. The same specific principles cannot be assigned to all, but only principles analogous to these in each case, as saying, in general terms, that there are three principles—Form, Privation, Matter. Each of these is different in every different genus: thus in colour, the principles are white, black, surface, light, darkness, air, and out of these are generated day and night (b. 21).

The three preceding causes are all intrinsic or immanent (ἐνυπάρχοντα). But there are other causes also extrinsic, such as the Movent. So that Principle and Element are not exactly identical; for Principle as well as Cause includes all the four: τὸ κινοῦν ἢ ἱστάν is a Principle, and is itself an Essentia (p. 1070, b. 25). Thus the analogous Elements are three, while the Principles or Causes are four; but the four are specifically different in each different case. Thus, health is Form; sickness is Privation; body is Matter; the medical art is Movent. House is Form; disorder of a certain sort is Privation; bricks are Matter; the building art is Movent. We thus make out four Causes; yet, in a certain sense, there will be only three (b. 32). For, in natural products, a man is the Movent Cause of a man; in artificial products (ἐν τοῖς ἀπὸ διανοίας) the Movent is Form or Privation. In a certain sense, the medical art is health, and the building art is the Form of a house, and a man begets a man. And farther, over and above these special movent causes, there is the Primum Movens of all (b. 35).

We distinguish what is separable from what is not separable. Now Essentiæ, and they only, are separable; accordingly they are the causes of every thing else, since without Essentiæ there cannot be either affections or movements (p. 1071, a. 2). Such causes would be soul and body, or reason, appetite, and body. Again, in another sense, the principles of all things are generically the same, though specifically different; such are Potentia and Actus. In some cases, the same thing exists now potentially, at another time actually; thus wine, though actually wine, is potentially vinegar; flesh is actually flesh, potentially a man. Potentia and Actus will merge in the above-mentioned causes—Form, Privation, Matter, Movent (a. 7). For the Form (if it be separable), the Concrete (of Form and Matter), and Privation (like darkness or sickness)—all these exist actually; while Matter exists potentially, capable either of Form or Privation. Things differ potentially and actually sometimes through difference in the Matter, sometimes through difference in the Form. Thus, the cause of a man is, in the way of Matter, the elements fire and earth; in the way of Form, his own Form, and the same Form in another individual—his father; and besides these, the Sun with its oblique motion; which last is neither Matter, nor Form, nor Privation, nor the like Form in another individual, but a Movent Cause (ἀλλὰ κινοῦντα—a. 17).

We must remember, besides, that some things may be described in general terms, others cannot be so described. The first principles of all things are, speaking in general terms, Hoc Primum Actu and Aliud Primum Potentiâ. These universals do not really exist (p. 1071, a. 19), for the principium of all individuals is some other individual. Man indeed is the principium of the Universal Man, but no Universal Man exists (a. 21). Peleus is the principium of Achilles; your father, of you; this B, of that B A; B, the universal, of B A the universal. Next (after the Movent) come the Forms of Essences; but the different genera thereof (as has been already stated), colours, sounds, essences, quantities, &c., have different causes and elements, though the same when described in general terms and by analogy; also different individuals in the same species have different causes and elements, not indeed different in species, but different individually; that is, your Matter, your Movent, your Form, are different from mine, though in general terms and definition they are the same (τῷ καθόλου δὲ λόγῳ ταὐτά—a. 29).

When therefore, we enquire, What are the principles or elements of Essences, of Relata, of Qualities &c., and whether they are the same or different? it is plain that, generically speaking (allowing for difference of meaning—πολλαχῶς, p. 1071, a. 31), they are the same in each; but, speaking distributively and with reference to particulars, they are different, and not the same. In the following sense (ὡδί—a. 34), they are the same, namely, in the way of Analogy (τῷ ἀνάλογον). They are always Matter, Form, Privation, the Movent; hence the causes of Essences are causes of all other things, since, when Essences disappear, all the rest disappears along with them: besides all these, there is the Primum Movens Actuale, common to all (ἔτι τὸ πρῶτον ἐντελεχείᾳ—a. 36). In the following sense, again, they are different—when we cease to speak of genera, and pass from equivocal terms to particulars: wherever there are different opposites (as white and black, health and sickness) and wherever there are different Matters (καὶ ἔτι αἱ ὗλαι—p. 1071, b. 1; ὗλαι in the plural, rare).

We have thus declared, respecting the principles of Perceivable Essences, what and how many they are; in what respect the same, and in what respect they are different. Essences are threefold; two Physical and one Immoveable. We shall proceed to speak of this last. There exists, of necessity, some Eternal, Immoveable Essence. For Essences are the first of all existent things; and, if they all be perishable, every thing is perishable. But it is impossible that Motion can ever have been generated or can ever be destroyed; for it always existed: it is eternal. There is the like impossibility about Time: for, if Time did not exist, there could be nothing *prius* and nothing *posterius* (p. 1071, b. 8). Both Motion and Time are thus eternal; both are also continuous; for either the two are identical, or Time is an affection (πάθος) of Motion. Now no mode of Motion is continuous except local motion; and that in a circle (for rectilinear motion cannot be continuous and eternal). There must be a Movent or Producent Principle (κινητικὸν ἢ ποιητικόν—b. 12); but, if the Movent existed potentially and not actually, there could not be motion continuous and eternal; for that which has mere power may never come into act. There will be no use therefore in such eternal Essences as Plato assumes in his Ideas, unless there be along with them some principle of potential change (εἰ μή τις δυναμένη ἐνέσται ἀρχὴ μεταβάλλειν—b. 15). Nor indeed will even that be sufficient (*i.e.*, any principle of *merely potential* change), nor any other Essence (such as numbers—Schwegler besides or along with the Platonic Ideas:

for, if this *principium* shall not come into Actuality (εἰ μὴ ἐνεργήσει — b. 17), the motion which we postulate, continuous and eternal, will not result from it. Nor will it even be sufficient that the Movent Principle should be supposed to be in actuality or operation (οὐδ' εἰ ἐνεργήσει, p. 1071, b. 18), if its Essence be Potentiality: the motion resulting therefrom cannot be eternal; for that which exists potentially may perhaps not exist at all. The Movent Principles therefore must be something of which the Essence is Actuality (b. 19), and which shall be without Matter, for they must be eternal, otherwise nothing else can be eternal. They must therefore be essential Actualities (b. 22).

Here however, a difficulty suggests itself. It seems that every thing which is in actuality must also be in potentiality, but that every thing which is in potentiality does not in every case come into actuality: so that Potentiality seems the *prius* of the two (δοκεῖ γὰρ τὸ μὲν ἐνεργοῦν πᾶν δύνασθαι, τὸ δὲ δυνάμενον οὐ πᾶν ἐνεργεῖν—p. 1071, b. 24; Bonitz compares p. 1060, a. 1: ἀρχὴ γὰρ τὸ συναναιροῦν). But, if this were true, no Entia could exist; for it may be that they exist potentially, but not yet exist actually (b. 26). There is the like impossibility, if we adopt the theory of those theologians (Orpheus, Hesiod, &c.) who take their departure from Night, or of those physical philosophers who begin with a chaotic huddle of all things. In both cases such original condition is one of mere potentiality; and how can it ever be put in motion, if there is to be no cause in actuality (εἰ μηθὲν ἔσται ἐνεργείᾳ αἴτιον—b. 29)? Matter will never cause motion in itself, but must wait for the carpenter's art; nor will the earth, but must wait for seed.

It is for this reason that some philosophers, like Plato and Leukippus, represent Actuality as eternal; for they say that motion has always existed. But they do not say what variety of motion, nor why that variety, to the exclusion of others. For nothing is moved at haphazard; there must always be some reason why it is moved in one way rather than another: for example, by nature in one way; by other causes, such as violence of Noûs, in some other way (p. 1071, b. 36). But it is not competent to Plato to assume what he sometimes does assume as principium (p. 1072, a, 2—allusion to Plato Phædrus 245, E), viz., a Self-Movent; for Plato affirms (in Timæus 34, B) that the soul is *posterius*, and coæval with the Kosmos. The doctrine just mentioned—That the Potential is prior to the Actual—is true in one sense, but not true in another; we have already explained *how* (εἴρηται δὲ πῶς—a. 4. Schwegler thinks, note p. 254, that this εἴρηται refers to what has been said in Book Θ, p. 1049, b. 3, seq.; and this seems probable, though Bonitz in his note contests it, and refers to his own theory, set forth in his Procemium pp. 24, 25, that Book Λ is a separate treatise of Aristotle, completely distinct from all the rest of the Metaphysica. This theory of Bonitz may be in the main true; but it is still possible that Book Θ may have been written previously, and that Aristotle may here refer to it, as Schwegler supposes.)

That Actuality is prior to Potentiality, is conformable to the doctrine of Anaxagoras, Noûs in his doctrine existing in Actuality; also to that of Empedokles, who introduces Friendship and Enmity; and again, to that of Leukippus, who affirms Motion to be eternal. So that Chaos or Night (*i.e.*, mere Potentiality) did not prevail for an infinite anterior time, but the same things came round in perpetual vicissitude or rotation; which consists with the doctrine that Actuality is prior to Potentiality. If the same condition comes round periodically, we must necessarily assume something Actual, which perpetually actualizes in the same manner (δεῖ τι ἀεὶ μένειν ὡσαύτως ἐνεργοῦν—p. 1072, a. 10). Again, if generation and destruction are to take place, we must assume something else Actual, which actualizes in a manner perpetually changing (ἄλλο δεῖ εἶναι ἀεὶ ἐνεργοῦν ἄλλως καὶ ἄλλως—a. 12). This last must actualize sometimes *per se*, sometimes in a different way; that is, according to some other influence, or according to the First (or Uniform) Actual. But it will necessarily actualize according to the First Actual; which will thus be a cause both to itself, and to the variable Actual. Now the First Actual is the best; for it is the cause of perpetual sameness, while the other is cause of variety; both together are the cause of unceasing variety. But this is how the motions really stand. Why then, should we look out for other principles (a. 18)?

Now, since the preceding views are consistent with the facts and may be true (ἐπεὶ δ' οὕτω τ' ἐνδέχεται—p. 1072, a. 18)—and, if they be not true, we shall be compelled to admit that everything proceeds either from Night, or from confused Chaos or Non-Ens—we may consider the problem as solved. There exists something always in unceasing circular motion: this is evident not merely from reason, but from fact. The First Heaven (Aplanês or Fixed Star sphere) will

therefore be eternal. There must therefore exist something which causes this unceasing motion, or some Prime Movent. But, since Movens Immobile, Movens Motum, Motum non Movens, form a series of three terms, and since the two last of these certainly exist, we may infer that the first exists also; and that the Prime Movent, which causes the motion of the Alpanês, is immoveable (a. 2-025.—This passage perplexes all the commentators—Schwegler, Bonitz, Alexander, &c. It can hardly be construed without more or less change of the text. I do not see to what real things Aristotle can allude under the description of Mota which are not Moventia. There is much to be said for Pierron and Zévort's translation, p. 220: "Comme il n'y a que trois sortes d'êtres—ce qui est mu, ce qui meut, et le moyen terme entre ce qui est mu et ce qui meut: c'est un être (*i.e.*, this middle term is an être) qui meut sans être mu." —Bonitz disapproves this interpretation of the word *μέσον*, and it is certainly singular to say that between *Movens* and *Motum*, the term *Movens sed non Motum* forms a medium: *Motum sed non Movens* would form just as good a medium). This Prime Movent, which causes motion without being itself moved, must be eternal, must be Essentia, and must be an Actuality.

Now both the Appetibile (*τὸ ὀρεκτόν*) and the Cogitabile (*τὸ νοητόν*) cause motion in this way, *i.e.*, without being moved themselves; moreover the Primum Appetibile and the Primum Cogitabile are coincident or identical (p. 1072, a. 27). For that which appears beautiful, is the object of desire; but that which is beautiful, is the first object of will (a. 28). Cogitation is the principium of the two (the primary fact or fundamental element): we will so and so, because we think it good; it is not true that we think it good because we will it (*ὀρεγόμεθα δὲ διότι δοκεῖ, μᾶλλον ἢ δοκεῖ διότι ὀρεγόμεθα* —a. 29). Now the Cogitant Mind (*νοῦς*) is moved by the Cogitabile, and, in the series of fundamental Contraries, the members of one side of the series are Cogitabilia *per se* (while those of the other side are only Cogitabilia *per aliud* —*νοητὴ δ' ἡ ἑτέρα συστοιχία καθ' αὑτήν*— a. 31; see Alex., p. 668, 16, Bon.). These Cogitabilia *per se* are first as to Essentia (*i.e.*, compared with the Cogitabilia *per aliud*, they are logically *priora*): and again, among Essentiæ, that variety which is simple and actual comes first (*i.e.*, it is logically *prius*, as compared with the compound and the potential). Now Unum is not identical with Simplex: Unum signifies that which is a measure of something else, while Simplex denotes a peculiar attribute of the subject in itself (a. 34). But the Pulchrum and the Eligibile *per se* belongs to the same side of the series of Contraries, as the Cogitabilia *per se*: and the Primum Pulchrum or Eligibile is the Best or akin thereunto, in its own particular ascending scale (b. 1).

That *τὸ οὗ ἕνεκα* is among the Immoveables, may be seen by our Treatise De Bono, where we give a string of generic and specific distributions (*ἡ διαίρεσις δηλοῖ*—p. 1072, b. 2; see the interpretation of Alexander, adopted both by Schwegler and by Bonitz). For *τὸ οὗ ἕνεκα* is used in a double sense; in one of the two senses it ranks among the Immoveables: in another it does not (*ἔστι γὰρ διττὸν τὸ οὗ ἕνεκα*, b. 3—*διττόν* is Schwegler's correction, adopted by Bonitz). It causes motion, in the manner of a beloved object; and that which it causes to move, causes motion in other things (*κινεῖ δὲ ὡς ἐρώμενον· τὸ δὲ κινούμενον τἆλλα κινεῖ*—b. 3; *τὸ δὲ κινούμενον* is the conjecture of Schwegler and Bonitz).

Now, if anything be moved, there is a possibility that it may be in a condition different from that in which it actually is. If the first actuality of the Moveable be translation or motion in space, there is a possibility that it may be otherwise than it is as to place, even though it cannot be otherwise than it is as to Essentia (p. 1072, b. 7).

But, as to the Prime Movent, which is itself immoveable, and which exists in actuality, it is impossible that *that* can be other than what it is, in any respect whatever (p. 1072, b. 8). For the first of all changes is local motion, or rotation in a circle, and this is exactly what the Prime Movent imparts (but does not itself possess). It exists by necessity, and by that species of necessity which implies the perfect and beautiful: and in this character it is the originating principle. For there are three varieties of necessity: (1) That of violence, in contradiction to the natural impulse; (2) That without which good or perfection cannot be had; (3) That which is what it is absolutely, without possibility of being otherwise. From a principle of this nature (*i.e.*, necessary in the two last senses) depend the Heaven and all Nature (b. 14).

The mode of existence (*διαγωγή*) of this Prime Movent is for ever that which we enjoy in our best moments, but which we cannot obtain permanently; for its actuality itself is also pleasure (p. 1072, b. 16). As actuality is pleasure, so the various actualities of waking, perceiving, cogitating, are to us the pleasantest part of our life; while hopes and remembrances are pleasing by derivation from

them (but these states we men cannot enjoy permanently and without intermittence). Cogitation *per se* (*i.e.*, cogitation in its most perfect condition) embraces that which is best *per se;* and most of all when it is most perfect. The Noûs thus cogitates itself through participation of the Cogitabile: for it becomes itself cogitable by touching the Cogitabile and cogitating: so that Cogitans and Cogitabile become identical. For Noûs in general (the human Noûs also) is in potentiality the recipient of the Cogitabile, and of Essentia or Forms; and it comes into actuality by possessing these Forms. So that what the Prime Movent possesses is more divine than the divine element which Noûs in general involves; and the actuality of theorizing is the pleasantest and best of all conditions (*νοητὸς γὰρ γίγνεται θιγγάνων καὶ νοῶν, ὥστε ταὐτὸν νοῦς καὶ νοητόν. τὸ γὰρ δεκτικὸν τοῦ νοητοῦ καὶ τῆς οὐσίας νοῦς. ἐνεργεῖ δὲ ἔχων· ὥστ' ἐκεῖνο μᾶλλον τούτου ὃ δοκεῖ ὁ νοῦς θεῖον ἔχειν, καὶ ἡ θεωρία τὸ ἥδιστον καὶ ἄριστον*—b. 24. This is a very difficult passage, in which one cannot be sure of interpreting rightly. None of the commentators are perfectly satisfactory. The pronoun *ἐκεῖνο* seems to refer to *ἡ νόησις ἡ καθ' αὑτήν*—three lines back. The contrast seems to be between the Prime Movent, and Noûs in general, including the human Noûs. *Τὸ δεκτικὸν* cannot refer to the Prime Movent, which has no potentiality, but must refer to the human Noûs, which is not at first, nor always, in a state of actuality. *Μᾶλλον* seems equivalent to *θειότερον*. The human Noûs has *θεῖόν τι*, by reason of its potentiality to theorize.).

Thus it is wonderful, if God has perpetually an existence like that of our best moments; and still more wonderful, if he has a better. Yet such is the fact. Life belongs to him: for the actuality of Noûs is life, and God is actuality. His life, eternal and best, is actuality *per se* (or *par excellence*). We declare God to be an Animal Optimum Æternum, so that duration eternal and continuous (*αἰὼν συνεχής*) belongs to him: for *that* is God (*τοῦτο γὰρ ὁ θεός*—p. 1072, b. 30).

The Pythagoreans and Speusippus are mistaken in affirming that Optimum and Pulcherrimum is not to be found in the originating principle (*ἐν ἀρχῇ*); on the ground that the principles of plants and animals are indeed causes, but that the beautiful and perfect appears first in the results of those principles. For the seed first proceeds out of antecedent perfect animals: the first is not seed, but the perfect animal. Thus we must say that the man is prior to the seed: I do not mean the man who sprang from the seed, but the other man from whom the seed proceeded (p. 1073, a. 2).

From the preceding reasonings, it is evident that there exists an Essence eternal, immoveable, and separated from all the perceivable Essences. We have shown (in Physica; see Schwegler's note) that this Essence can have no magnitude; that it is without parts and indivisible (p. 1073, a. 6). For it causes in other subjects motion for an infinite time; and nothing finite can have infinite power. For this reason the Prime Movent cannot have finite magnitude; but every magnitude is either finite or infinite, and there is no such thing as infinite magnitude; therefore the Prime Movent can have no magnitude at all. We have also shown that it is unchangeable in quality, and without any affections (*ἀπαθὲς καὶ ἀναλλοίωτον*). For all other varieties of change are posterior as compared with locomotive change or motion in space, which is the first of all. As the Prime Movent is exempt from this first, much more is it exempt from the others (a. 13).

We must now consider whether we ought to recognize one such Movent or Essence only, or several of the same Essences? and, if several, how many? Respecting the number thereof we must remember that our predecessors have laid down no clear or decisive doctrines (*ἀποφάσεις*, p. 1073, a. 16). The Platonic theory of Ideas includes no peculiar research on this subject (a. 18). The Platonists call these Ideas Numbers: about which they talk sometimes as if there were an infinite multitude of them, sometimes as if they were fixed as reaching to the dekad and not higher—but they furnish no demonstrative reason why they should stop at the dekad. We shall proceed to discuss the point consistently with our preceding definitions and with the nature of the subjects (a. 23). The Principium, the First of all Entia, is immoveable both *per se* and *per accidens:* it causes motion in another subject, to which it imparts the first or locomotive change, one and eternal (a. 25). The Motum must necessarily be moved by something; the Prime Movent must be immoveable *per se;* eternal motion must be caused by an eternal Movent; and one motion by one Movent (a. 30). But we see that, over and above the simple rotation of the All (or First Heaven), which rotation we affirm to be caused by the Primum Movens Immobile, there are also other eternal rotations of the Planets; for the circular Celestial Body, as we have shown in the Physica, is eternal and never at rest (a. 32). We must therefore necessarily assume that each of these rotations of the Planets is caused by a

Movent Immoveable *per se*—by an eternal Essence (a. 35). For the Stars and Planets are in their nature eternal Essences: that which moves them must be itself eternal, and prior to that which it causes to be moved; likewise that which is prior to Essence must itself be Essence, and cannot be anything else (a. 37). It is plain, therefore, that there must necessarily exist a number of Essences, each eternal by nature, immoveable *per se*, and without magnitude, as Movents to the Heavenly Bodies and equal in number thereto (a. 38). These Essences are arranged in an order of first, second, &c., corresponding to the order of the planetary rotations (b. 2). But what the number of these rotations is, we must learn from Astronomy—that one among the mathematical sciences which is most akin (οἰκειοτάτης) to the First Philosophy; for Astronomy theorizes about Essence perceivable but eternal, while Arithmetic and Geometry do not treat of any Essence at all (περὶ οὐδεμιᾶς οὐσίας—b. 7). That the rotations are more in number than the rotating bodies, is known to all who have any tincture of Astronomy; for each of the Planets is carried round in more than one rotation (b. 10). But what the exact number of these rotations is, we shall proceed to state upon the authority of some mathematicians, for the sake of instruction, that the reader may have some definite number present to his mind: for the rest, he must both investigate for himself and put questions to other investigators; and, if he learns from the scientific men any thing dissenting from what we here lay down, he must love both dissentients but follow that one who reasons most accurately (φιλεῖν μὲν ἀμφοτέρους, πείθεσθαι δὲ τοῖς ἀκριβεστέροις—b. 16).

Aristotle then proceeds to unfold the number and arrangement of the planetary spheres and the corrective or counter-rolling (ἀνελιττούσας) spheres implicated with them (p. 1073, b. 17—p. 1074, a. 14). He afterwards proceeds: Let the number of spheres thus be forty-seven; so that it will be reasonable to assume the Immoveable Movent Essences and Principles to be forty-seven also, as well as the perceivable spheres (αἰσθητάς—p. 1074, a. 16): we say *reasonable* (εὔλογον), for we shall leave to stronger heads to declare it *necessary*. But, since there cannot be any rotation except such as contributes to the rotation of one of the Planets, and since we must assume that each Nature and each Essence is exempt from extraneous affection and possessed *per se* of the Best as an end, so there will be no other Nature besides the forty-seven above enumerated, and this number will be the *necessary* total of the Essences (a. 21). For, if there were any others, they would cause motion by serving as an end for some rotation to aspire to (κινοῖεν ἂν ὡς τέλος οὖσαι φορᾶς—a. 23); but it is impossible that there can be any other rotation besides those that have been enumerated.

We may fairly infer this from the bodies which are carried in rotation (ἐκ τῶν φερομένων—p. 1074, a. 24). For, if every carrier exists naturally for the sake of the thing carried, and if every current or rotation is a current of something carried, there can exist no current either for the sake of itself or for the sake of some other current. Every current must exist for the sake of the Planets, and with a view to their rotation. For, if one current existed for the sake of another, this last must exist for the sake of a third, and so on; but you cannot go on in this way *ad infinitum*; and therefore the end of every current must be, one or other of the Divine Bodies which are carried round in the heavens (a. 31).

That there is only one Heaven, we may plainly see. For, if there were many heavens, as there are many men, the principium of each would be one *in specie*, though the principia would be many *in numero* (p. 1074, a. 33). But all things that are many in number, have Matter, and are many, by reason of their Matter; for to all these many, there is one and the same Form (λόγος)—definition or rational explanation: *e.g.*, one for all men, among whom Sokrates is one (a. 35). But the First Essence has no Matter; for it is an Actual (τὸ δὲ τί ἦν εἶναι οὐκ ἔχει ὕλην τὸ πρῶτον· ἐντελέχεια γάρ—a. 36). The Primum Movens Immobile is therefore One, both in definition and in number; accordingly, the Motum—that which is moved both eternally and continuously—is One also. There exists therefore only one Heaven (p. 1074, a. 38).

Now it has been handed down in a mythical way, from the old and most ancient teachers (p. 1074, b. 1) to their successors, that these (Eternal Essences) are gods, and that the divine element comprehends all nature (ὅτι θεοί τέ εἰσιν οὗτοι καὶ περιέχει τὸ θεῖον τὴν ὅλην φύσιν—b. 3). The other accompaniments of the received creed have been superadded with a view to persuading the multitude and to useful purposes for the laws and the common interest (b. 4); wherefore the gods have been depicted as like to men and to some other animals, combined with other similar accompaniments. If a man, abstracting from these stories, accepts only the first and fundamental truth—That they conceived the First

Essences as gods, he will consider it as a divine doctrine (θείως ἂν εἰρῆσθαι νομίσειεν —b. 9), preserved and handed down as fragments of truth from the most ancient times. For probably all art and philosophy and truth have been many times discovered, lost, and rediscovered. To this point alone, and thus far, the opinion of our fathers and of the first men is evident to us (b. 14).

There are however various difficulties connected with the Noûs; for it would seem to be more divine than the visible celestial objects, and yet we do not understand what its condition can be to be such (p. 1074, b. 17). For, if it cogitates nothing but is in the condition of slumber and inaction, what ground can there be for respecting it (τί ἂν εἴη τὸ σεμνόν—b. 18)? And, if it cogitates something actually, yet if this process depends upon something foreign and independent (*i.e.*, upon the Cogitatum), the Noûs cannot be the best Essence; since it is then essentially not Cogitation in act, but only the potentiality of Cogitation; while its title to respect arises from actual Cogitation. Again, whether we assume its Essence to be Cogitation actual or Cogitation potential, *what* does it cogitate? It must cogitate either itself, or something different from itself; and, if the latter, either always the same Cogitatum, or sometimes one, sometimes another. But is there no difference whether its Cogitatum is honourable or vulgar? Are there not some things which it is absurd to cogitate? Evidently the Noûs must cogitate what is most divine and most honourable, without any change; for, if it did change, it must change for the worse, and that very change would at once (ἤδη) be a certain motion; whereas the Noûs is essentially immoveable (b. 27). First of all, if the Essence of the Noûs be, not Cogitation actual but, Cogitation potential, we may reasonably conceive that the perpetuity of Cogitation would be fatiguing to it (b. 29); next, we see plainly that there must exist something else more honourable than the Noûs; namely, the Cogitatum; for to cogitate, and the act of cogitation, will belong even to one who cogitates the vilest object. If cogitation of vile objects be detestable (φευκτόν, b. 32)—for not to see some things is better than to see them—Cogitation cannot be the best of all things (*i.e.* Cogitation absolutely, whatever be the Cogitatum).

Since the Noûs is itself the best of all things, it must employ its cogitation upon itself and nothing else. Its cogitation will thus be Cogitation of Cogitation (αὑτὸν ἄρα νοεῖ, εἴπερ ἐστὶ τὸ κράτιστον, καὶ ἔστιν ἡ νόησις νοήσεως νόησις—p. 1074, b. 35) Yet, if we look to the human mind, Cognition, Perception, Opinion, Mental Discourse, &c., appear always as having direct reference to something else, and as referring each to itself only in an indirect and secondary way (ἀεὶ ἄλλου—αὑτῆς δ' ἐν παρέργῳ—b. 36); and further, if to cogitate is one thing and to be cogitated another thing, in which of the two points of view will the *bene* of the Noûs consist? To be Cogitation, and to be a Cogitatum, are not logically the same (οὐδὲ γὰρ ταὐτὸ τὸ εἶναι νοήσει καὶ νοουμένῳ—b. 38).

But may we not meet these difficulties by replying that there are some things in which Cognition is identical with the Cognitum? that is, in those Cognita which are altogether exempt from Matter? In Constructive cognitions without Matter, the Form and the τ. η. ε. is both Cognitum and Cognitio; in Theoretical cognitions without Matter, the Notion and the Cogitation is itself the Cognitum (ὁ λόγος τὸ πρᾶγμα καὶ ἡ νόησις). Since it appears, therefore, that, wherever there is no Matter, Cogitatum and Noûs are not different, the same will be true of the divine Noûs: its Cogitatio and its Cogitatum will be identical (p. 1075, a. 5).

One farther difficulty remains, if we suppose the Cogitatum to be a Compound (σύνθετον); for, on that supposition, the Cogitans would change in running through the different parts of the whole. But the reply seems to be, that every thing which has not Matter is indivisible and not compound (p. 1075, a. 7). As the human Noûs, being that which deals with compounds, comports itself for a certain time—for it does not attain its *bene* in cogitating this or that part of the compound, but in apprehending a certain total or completion which is something different from any of the parts—so does the divine Noûs, engaged in cogitation of itself, comport itself in perpetuity (a. 10).

Another point to be considered is—in what manner the nature of the Universe (ἡ τοῦ ὅλου φύσις—p. 1075, a. 11) includes Bonum and Optimum. Is Bonum included as something separate and as an adjunct by itself transcendent? Or is it immanent, pervading the whole arrangement of the constituent parts? Or does it exist in both ways at once, as in the case of a disciplined army; for, in this latter, Bonum belongs both to the array and to the general, and indeed more to the latter, since the array is directed by the general, not the general by the array. All things in the universe are marshalled in a certain orderly way - the aquatic creatures, the aërial, and the plants; but all things are not marshalled alike. The universe is not such that there is no

relation between one thing and another: there is such a relation; for every thing is marshalled with a view to one end, though in different degrees. As, in a family the freemen have least discretion left to them to act at haphazard, but all or most of their proceedings are regulated, while slaves and oxen are not required to do much towards the common good, but are left for the most part to act at hazard, —in this way the principium of each is arranged by nature (a. 23). For example, every thing must necessarily come to the termination of one individual existence to make room for another: there are also some other facts and conditions common to all things in the universe (λέγω δ' οἷον εἴς γε τὸ διακριθῆναι ἀνάγκη ἅπασιν ἐλθεῖν—a. 23; see the explanation of διακριθῆναι, given by Bonitz, Comm. p. 519—not very certain).

In concluding this exposition, we must not lose sight of the absurdities and impossibilities which attach to all others, nor what is advanced by the most ingenious philosophers before us, nor which of their theories carries with it the fewest difficulties (p. 1075, a. 27).

That all things proceed from Contraries, all these philosophers agree in affirming. But it is not true that all things are generated, nor that they are generated from contraries; for the celestial substance is not generated at all, nor has it any contrary. Moreover, in those cases where there really are contraries, these philosophers do not teach us how generation can take place out of them; for contraries themselves have no effect upon each other. Now our doctrine solves this difficulty reasonably, by introducing a *tertium quid* (p. 1075, a. 31) —Matter. Some of these philosophers erroneously consider Matter to be itself one of the contraries: they consider the Unequal as matter or substratum to the Equal; or the Many as matter or substratum to the One; (Evil, as opposed to Good). We resolve this in the same way: our Matter is one, is contrary itself to nothing, but may be potentially either of two contraries. Farthermore, if we admit the doctrine that Evil itself is Matter or one of the elements, the inference will follow that every thing whatever, except the Unum itself, partakes of Evil (a. 6).

Some philosophers do not admit either Good or Evil to be principles at all; but they are manifestly wrong; for in all things Good is most of all the principle (p. 1075, a. 37). Others again are so far right that they recognize Good as a principle: but they do not tell us *how* it is a principle—whether as End, or as Movent, or as Form.

Empedokles lays down a strange doctrine: he makes Friendship to be the Good (p. 1075, b. 2). But, in his theory, Friendship is principle partly as Movent, for its function is to bring together (συνάγει γὰρ—b. 3); partly as Matter, for it is itself a portion of the mixture (μόριον τοῦ μίγματος—b. 4). Now, even granting the possibility that the same thing may be *per accidens* (κατὰ συμβεβηκός—b. 5, *i.e.*, by special coincidence in any one particular case) principle as Movent, and also principle as Matter, nevertheless the two are not the same logically and by definition. Under which of the two, therefore, are we to reckon Friendship? It is moreover another strange feature in the theory of Empedokles, that he makes Enmity to be indestructible; for this very Enmity is with him the nature and principle of Evil (b. 8).

Anaxagoras declares Good to be the principle as Movent; for, in his theory, Νοῦς causes motion; but it causes motion with a view to some end, which is of course different from itself; so that the real principle is different from Νοῦς: unless indeed he adopted one of our tenets; for we too say that, in a certain sense, the medical art is health (p. 1075, b. 10; Z. vii. p. 1032, b. 10). It is moreover absurd, that Anaxagoras does not recognize any contrary to Good and to the Νοῦς (b. 11). (Bonitz remarks, Comm. p. 522:—Aristotle means that Anaxagoras was wrong, because he failed "ad eam devenire rationem, ut intellectum sui ipsius intelligentiam ideoque sui ipsius τέλος esse statueret"; farther, he remarks, on the line b. 10—ἄτοπον δὲ καὶ τὸ ἐναντίον μὴ ποιῆσαι τῷ ἀγαθῷ καὶ τῷ νῷ: "Quid enim? nonne pariter et eodem jure νοῦς ἀμιγής, quem posuit Anaxagoras, ab omni contrarietate et oppositione immunis sit, ac primus motor apud Aristotelem?"—Aristotle would have replied to this: "I recognize principles of Evil under the names of ὕλη and στέρησις; the last of the two being directly opposed to Form (Regularity or Good), the first of the two being indifferent and equally ready as a recipient both for evil and for good. My Prime Movent acts like an ἐρώμενον in causing motion in the Celestial Substance: the motion of this last is pure Good, without any mixture of Evil. But, when this motion is transmitted to the sublunary elements, it becomes corrupted by ὕλη and στέρησις, so that Evil becomes mingled with the Good. Anaxagoras recognizes no counteracting principles, analogous to ὕλη and στέρησις, so that Evil, on his theory, remains unexplained.")

Those philosophers who lay down Contraries as their principles, do not make proper use of these Contraries, unless their language be improved or modified (p. 1075, b. 12). Nor do they tell us why some things are destructible, other things indestructible; for they trace all things to the same principles. Some make all things to proceed from Non-Ens: others, to escape that necessity, make all things One (and thus recognize no real change or generation at all—the Eleates, b. 16). Again, not one of them tells us why generation must always be, or what is the cause of generation. Once more, those who recognize two contrary principles must necessarily recognize a third superior to both (b. 18); and the Platonists with their Ideas are under the like necessity. For they must assign some reason why particular things partake of these Ideas.

Other philosophers, moreover, must consistently with their theories recognize something contrary to Wisdom and to the most venerable Cognition. But we are under no such necessity; for there is nothing contrary to the First (τῷ πρότῳ). All contraries involve Matter, and are in potentiality the same: one of the two contraries is ignorance in regard to the other; but the First has no contrary (p. 1075, b. 24).

Again, if there be no Entia beyond the Perceptibilia, there can be no beginning, no arrangement in order, no generation, no celestial bodies or proceedings (*i.e.*, all these will remain unexplained). There will always be a beginning behind the beginning, *ad infinitum;* as there is in the theories of all the theologians and physical philosophers (p. 1075, b. 27). And, even if we recognize, beyond the Perceptibilia, Ideas or Numbers, these are causes of nothing; or, if causes of any thing, they are certainly not causes of motion. How, moreover, can Magnitude, and a Continuum arise out of that which has no Magnitude? Number cannot, either as Movent or as Form, produce a Continuum (b. 30).

Again, (Contraries cannot be principles, because) no Contrary can be essentially Constructive and essentially Movent (p. 1075, b. 31); for Contraries involve Matter and Potentiality, and may possibly, therefore, not exist. And, if there be Potentiality, it will come prior to Actuality: upon that supposition therefore (*i.e.*, of Contraries as the fundamental principles) Entia could not be eternal. But Entia are eternal; therefore these theories must be in part amended: we have shown how (b. 34).

Farther, none of these theories explains how it is that numbers coalesce into One; or soul and body into One; or Form and Matter into one Concrete. Nor can they explain this, unless they adopt our doctrine, that the Movent brings about this coalition (p. 1075, b. 37).

Those philosophers (like Speusippus) who recognize many different grades and species of Entia (first the Mathematical Number, &c.), with separate principles for each, make the Essence of the Universe to be incoherent (ἐπεισοδιώδη— p. 1076, a. 1) and set up many distinct principles; for none of these Essences contributes to or bears upon the remainder, whether it exists or does not exist. Now Entia are not willing to be badly governed (τὰ δὲ ὄντα οὐ βούλεται πολιτεύεσθαι κακῶς. "οὐκ ἀγαθὸν πολυκοιρανίη· εἷς κοίρανος."—p. 1076, a. 4).

IV.

DE CŒLO.

Book I.

Ch. 1.—The science of Nature has for its principal object—Bodies, Magnitudes, and the various affections and movements of Bodies and Magnitudes; also the beginnings or principles of this sort of Essence. The Continuous is that which is divisible into parts perpetually divisible: and Body is that which is divisible in every direction. Of magnitudes, some (lines) are divisible only in one direction; others (planes) only in two directions; others again (bodies) in three directions. This is the maximum: there is no other magnitude beyond; for three are all, and to say "in three directions" is the same as to say "in all directions." As the Pythagoreans say, The Universe and All Things are determined by Three: in End, Middle, and Beginning, lies the number of the Universe, or the Triad. We have received these as laws from nature, and we accordingly employ this number (Three) for solemnities in honour of the Gods. Moreover, we apply our predicates on the same principle; for we call Two, and The Two—Both, but we do not call them all. Three is the first number to which we apply the predicate All. Herein (as was observed before) we follow the lead of Nature herself. Since therefore these three phrases—All Things, The Universe, The Perfect or Complete—do not specifically differ from each other, but are distinguished only in respect of the matter or occasions on which they are applied. Body is the only kind of magnitude which can be declared Perfect or Complete, that is, All: for it is the only magnitude determined or defined by the Three. Being divisible in three directions, it is divisible every way; other magnitudes are divisible either only in one way or only in two. Magnitudes are both divisible and continuous according to the number by which they are designated—continuous in one direction, in two, in three, or all. All divisible magnitudes are also continuous: whether all continuous magnitudes are divisible, is not yet clear. But what *is* clear is—that there is no upward transition to a higher genus beyond Body, as there is from line to surface, and from surface to Body. If there were, Body would not be perfect or complete as a magnitude; for the transition would be made at the point of deficiency; but the perfect or complete can have no deficiency: it stretches every way. Such is each body included as a part in the universe: it has dimensions in every direction. Yet each is distinguished from its neighbour by contact, and each therefore in a certain sense is many. But the Universe (τὸ πᾶν) including all these parts is of necessity perfect and complete; extending not merely in one way, and in another way not, but πάντῃ, as the word literally means (ss. 1-4).

Ch. 2.—Respecting the nature of the Universe, we shall enquire presently whether in the aggregate it be infinite or of finite magnitude. But first let us speak about its different constituent species, proceeding on the following basis. I affirm that all natural bodies and magnitudes are *per se* locally moveable; and that Nature is to them a beginning or principle of motion. Now all Local Motion (known by the name of φορά) is either Rectilinear or Circular, or compounded of the two; for these two are the only simple motions, by reason that the only two simple magnitudes are the rectilinear and the circular. The circular is motion round the centre; the rectilinear is motion either downwards towards the centre or upwards from the centre. These three are the only simple modes of motion or currents: as I said in the last chapter that body was made complete in the number three, so also the motion of body is made complete in the number three. Now, as there are some bodies (such as fire, earth, and their cognates) which are simple (*i.e.*, which have in themselves a natural beginning or principle of motion), and others which are compounds of these, so also there must be simple motions belonging to the former and compound motions belonging to the latter; such compound motions being determined by the preponderant element therein. Since, therefore, circular motion is a simple mode of motion, and since simple modes of motion

belong only to simple bodies, there must of necessity be a particular variety of simple body, whose especial nature it is to be carried round in circular motion. By violence, indeed, one body might be moved in a mode belonging to another; but not by nature. Moreover, since motion against nature is opposite to motion conformable to nature, and since each mode has one single opposite, simple circular motion, if it be not conformable to the nature of this body, must be against its nature. If then the body rotating in a circle be fire or any of the other elements, its natural mode of motion must be opposite to circular motion. But each thing has only one opposite; and up and down are each other's opposites. If then the body which rotates in a circle rotates thus against nature, it must have some other mode of motion conformable to nature. But this is impossible: for, if the motion conformable to its nature be motion upwards, the body must be fire or air; if motion downwards, the body must be earth or water (and there is no other simple mode of motion that it can have). Moreover, its rotatory motion must be a first motion; for the perfect is prior in nature to the imperfect. Now the circle is perfect; but no straight line is perfect: neither an infinite straight line, for in order to be perfect, it must have an end and a boundary; nor any finite straight line, for each has something without it and may be prolonged at pleasure. So that, if motion first by nature belong to a body first by nature, if circular motion (as being perfect) be prior to rectilinear motion, and if rectilinear motion belong to a first or a simple body, as we see both in fire and in earth,—we may be sure *à fortiori* that circular motion belongs to a simple body, and that there is, besides the four elements here, prior to them and more divine than them, a different body of special nature and essence. Indeed, since circular motion is against the nature of these four elements, there must be some other different body to whose nature it is conformable. There must thus be some simple and primary body, whose nature it is to be carried round in a circle, as earth is carried downwards and fire upwards. On the assumption that the revolving bodies revolved against their own nature, it would be wonderful and even unreasonable that this one single mode of motion, being thus contrary to nature, should be continuous and eternal; for in all other things we see that what is contrary to nature dies away most speedily. Now, if the revolving body were fire, as some affirm, the revolving motion would be just as much contrary to its nature as motion downwards; for the natural motion of fire is upwards or away from the centre. Reasoning from all these premisses, we may safely conclude that, distinct from all these bodies which are here around us, there exists a body whose nature is more honourable in proportion to its greater distance from us here (ss. 1-13).

CH. 3.—We plainly cannot affirm that every body is either heavy or light: meaning by heavy, that which is carried by its nature downwards or towards the centre; by light, that which is carried by its nature upwards or away from the centre. Heaviest (or earth) is that which underlies all other downward moving bodies, lightest (fire) is that which floats above all upward moving bodies. Air and water are both light and heavy, relatively, but relatively to different terms of comparison; thus, water is heavy as compared to air and fire, light as compared to earth. But that body whose nature it is to revolve in a circle, cannot possibly have either heaviness or levity; for it cannot move in a right line, either upwards or downwards, nor either by nature or against nature. Not by nature, for, in that case, it must be identical with some one of the four elements; not against nature, because, if it moved upwards against nature, this would prove that motion downwards was conformable to its nature, and it would thus be identical with earth: we have already seen that, if a body moves upwards against nature, it must move downwards according to nature, and *vice versâ*. Now the same natural motion which belongs to any body as a whole, belongs also to its minute fragments (to the whole earth and to any of its constituent clods). Accordingly the revolving body in its local movement of revolution cannot possibly be dragged in any other direction, either upward or downward,—neither the whole nor any portion thereof. It is alike reasonable to conceive it as ungenerable, indestructible, incapable both of increase and of qualitative change (ἀναυξὲς καὶ ἀναλλοίωτον). It cannot be generated, because every thing generated comes out of a substratum and an opposite, into which it relapses on being destroyed. Now the revolving body has no opposite; for we have already seen that opposite bodies have their currents of motion opposite, and there is no current of motion opposite to that of circular rotation. Nature has rightly excepted this ungenerable and indestructible substance from the action of contraries, in which generation and destruction occur. It is also incapable of

increase or diminution, because these processes take place through the accession of new cognate materials; and in this case there are none such. It is farther incapable of qualitative change, because this always implies the being affected favourably or unfavourably (πάθος); and this last never takes place, in plants or in animals, without some increase or diminution in quantity (ss. 1-5).

This Celestial Substance is thus eternal, ungenerable, indestructible, noway increased nor diminished, neither growing old nor capable of disturbing affections nor changeable in quality. Herein the evidence of reason and that of phenomena concur. For all men, Hellenes and Barbarians, have some belief respecting the Gods, and all who believe Gods to exist assign to the divine nature the uppermost place in the Kosmos; an immortal place going naturally along with immortal persons. Our perceptions confirm this sufficiently, at least when we speak with reference to human belief. For not the smallest change has ever been observed in the celestial substance, throughout all past time. Under these impressions, the ancients gave to it the name which it now bears; for the same opinions suggest themselves to us not once, nor twice, but an infinite number of times Hence the ancients, regarding the First Body as something distinct from Fire, Earth, Air, or Water, called the uppermost place Æther, from its being always running (ἀπὸ τοῦ θεῖν ἀεί), the adverbial designation being derived from eternal duration. Anaxagoras employs this name improperly: he calls Fire by the name of Æther (s. 6).

It is plain, from all we have said, that the simple bodies cannot be more in number than those just indicated; for a simple body must of necessity have a simple mode of motion, and there are only three simple modes of motion—one circular and two rectilinear, one of these being from the centre, the other towards the centre (s. 7).

CH. 4.—That Circular Rotation has no motion opposed to it, may be shown by several different arguments. If there were any, it would certainly be rectilinear motion; for convex and concave, though each respectively opposed to the other, are, when both put together, opposed as a couple to rectilinear motion. But each variety of rectilinear motion has another variety of rectilinear motion opposed to it; and each thing has but one opposite. Moreover the oppositions between one motion (or one current—φορά) and another are founded upon oppositions of place, which are three in number: (1) Above and Below; (2) Before and Behind; (3) Right and Left. Now the motion in circular rotation from from A to B is not opposite to that from B to A: the opposition of motion is along the straight line which joins the two; for an infinite number of different circles may be drawn, not interfering with each other but all passing through the same two points A and B. In the same semicircle, the opposition between the current from A to B and that from B to A, is along the line of diameter—not along the line of circumference. If one circular current were really opposed to any other circular current, one or other of the two would have existed to no purpose; for both have the same object. That is to say: what is carried round in a circle, let it begin from any point whatever, must necessarily come round equally to all the opposite places, above, below, before, behind, right, left. If the two (presumed) opposite circular currents were equal, they would neutralize each other, and there would be no motion at all of either of them. If one of the two were the more powerful, it would extinguish the other; so that to suppose the existence of both is to suppose that one or both exists in vain (*i.e.*, can never be realized). We say that a sandal exists in vain (μάτην), when it cannot be fastened on. But God and nature do nothing in vain (ss. 1-8).

CH. 5.—Most of the ancient philosophers admitted an infinite body; but this may be shown to be impossible. The question is very important; for the consequences which follow from admitting the Infinite as principium, affect our speculations concerning the whole of Nature (s. 1).

Every body is of necessity either simple or compound. The infinite body therefore, if it exists, must of necessity be either one or the other. But there can be no infinite compound composed of simple bodies finite in magnitude and in number: so that, if an infinite body exist, it must be simple. We shall first enquire whether the First Body, whose nature it is to move in a circle, can be infinite in magnitude. Now, if it were infinite, the radii thrown out from the centre would be infinite, and the distance between them would also be infinite; that is, no finite peripheral line can be found touching all the extremities of the radii without: if any such line be assumed, you may always assume a greater. We call Number infinite, because the greatest number cannot be given; and the like may be said about this distance. Now, as an infinite distance cannot be passed over, no circular motion passing over it is possible, so as to come round to the

point of departure. But we see plainly that the First Body or the Heaven does come round in a circle; and it has been shown by reasoning *à priori* that there *is* a variety of body whose nature it is to move in a circle. Such a body therefore as the First (revolving) Body cannot be infinite (ss. 2, 3).

Four other arguments are added, proving the same conclusion (s. 4, seq.). One of them is: That an infinite square, circle, or sphere, is an impossibility; each of these figures being defined or determined. As there can be no infinite circle, so neither can an infinite body be moved round in a circle (s. 7).

Ch. 6.—As the First Body cannot be infinite, so neither can those bodies be infinite whose nature it is to move to the centre and from the centre—neither the centripetal nor the centrifugal body. For these two currents are opposite in nature; opposite currents being characterized by the opposite places to which they tend. But of two opposites, if the one be fixed and determinate, the other must be fixed and determinate also. Now the centre is determined; for the centripetal body, let it fall from what height it will, can never fall lower than the centre; and, since the centre is determined, the upper region or extremity must also be determined. The places at each extreme being thus determined, the intermediate space must be determined also; otherwise there would exist motion undetermined or infinite, which has been shown in a former treatise to be impossible (Physica, VIII. viii.); and therefore that body which either is therein, or may possibly be therein, must be determined. But it is a fact that the centripetal body and the centrifugal body can be therein; for centripetality and centrifugality are of the nature of each respectively (ss. 1, 2).

Hence we see that there can be no infinite body. There are other reasons also. As the centripetal body is heavy, if it be infinite, its gravity must also be infinite; and, if gravity cannot be infinite, neither can any heavy body be infinite. The like about any light body, such as the centrifugal (s. 3).

He then shows (by a long process of reasoning, not easy to follow) first, that there cannot be an infinite body with finite gravity; next, that there can be no infinite gravity. Accordingly there can be no infinite body at all, having gravity. At the end, he considers that this is established, (1) by the partial arguments (διὰ τῶν κατὰ μέρος) immediately preceding; (2) by the general reasonings in his other treatises respecting first principles, in which he explained the Infinite—in what sense it existed and did not exist; (3) by an argument about the Infinite, upon which he touches in the next chapter (ss. 4-13).

Ch. 7.—Every body is of necessity either infinite or finite. If infinite, it is as a whole either of like constituents or of unlike. If the latter, either of a finite number of species, or of an infinite number. The last is impossible, if our fundamental assumptions are allowed to stand. For since the simple modes of motion are limited in number, the simple bodies must be alike limited; each simple mode of notion belonging to its own special simple body, and each natural body having always its own natural motion. But, if the Infinite be composed of a finite number of species, each of these constituent parts must be infinite; that is, water and fire must be infinite. Yet this too, is impossible; for we have seen that there cannot be either infinite levity or infinite gravity (the attributes of fire and water). Moreover, if these bodies be infinite, the places which they occupy, and the motions which they make, must also be infinite; but this also we have shown to be inadmissible, if our fundamental assumptions are admitted. The centripetal body cannot be carried to an infinite distance downward, nor the centrifugal body to an infinite distance upward. That which cannot come to pass, cannot be in course of coming to pass; thus, if a thing cannot come to be white, or a cubit long, or domiciled in Egypt, it cannot be in course of becoming white, or a cubit long, &c. It cannot be in course of being carried to a terminus which cannot be reached. It might be argued that fire, though discontinuous and dispersed, might still be infinite, in the sum total of its different masses. But body is that which is extended in every direction: how can there be many bodies unlike to each other, yet each of them infinite? Each of them, if infinite at all, ought to be infinite in every direction (ss. 1-5).

We thus see that the Infinite cannot consist of unlike constituents. But neither can it consist of constituents all similar. For, first, there are only three simple motions, and one of the three it must have; but we have shown that it cannot have either centripetal or centrifugal motion (*i.e.*, that it cannot have either infinite gravity or infinite levity); nor can it again have circular motion, for the Infinite cannot be carried in a circle: this would amount to saying that the Heaven is infinite, which we have shown to be impossible. The Infinite indeed cannot be moved in any way at all; for, if moved, it must be moved either according to nature, or contrary

to nature (violently), and, if its present motion be violent, it must have some other mode of motion which is natural to it. But, if it have any such, this assumes that there exists some other place belonging to it, into which it may be conveyed—an obvious impossibility (ss. 6, 7).

Farthermore, the Infinite cannot act in any way upon the Finite, nor be acted upon thereby (ss. 8-10). Nor can the Infinite be acted upon in any way by the Infinite (ss. 11-12).

If then every perceptible body possesses powers, as agent or patient or both, there can be no perceptible body which is infinite. But all bodies which are in any place are perceptible; therefore no body which is in any place can be infinite. There is no infinite body, indeed there can be no body at all, outside of the Heaven; for that which is outside of the Heaven is in a place. Even if perceivable only up to a certain point (μέχρι τινός), even if merely intelligible, it would still be in a place, and would therefore come under the foregoing argument—that there is no body outside of the Heaven (ss. 13, 14).

The foregoing reasoning may be summed up, in more general language (λογικώτερον), as follows:—The Infinite assumed as homogeneous cannot be moved in a circle, since the Infinite has no centre; nor in a straight line, since this would imply a second infinite place into which it must be moved according to nature, and a third infinite place into which it must be moved against nature, and since in either case the force which causes it to be moved must be infinite. But we have already argued, in treating of Motion (Phys. VIII. x.) that nothing finite can have infinite power, nothing infinite can have finite power: and, if that which is moved according to nature can also be moved contrary to nature, there must of necessity be two Infinites—Movens and Motum. Yet what can that be which causes the Infinite to move? If it cause itself to move, it must be animated (ἔμψυχον): but how can an infinite animated being (ζῷον) exist? And, if there be anything else which causes it to move, there must exist two Infinites, each distinguished from the other in form and power (ss. 15-17).

Again, even if we admit the doctrine of Leukippus and Demokritus—That the whole is not continuous, but discontinuous, atoms divided by intervening spaces—still the Infinite is inadmissible. For the nature and essence of these atoms is all the same, though they are different from each other in figure and arrangement; accordingly the motion of all must be the same: if one is heavy or centripetal, all must be so alike; if one is light or centrifugal, all must be so alike. But either of these motions would imply the existence of centre and periphery; which does not consist with an infinite whole. In the Infinite, there is neither centre nor periphery; no terminus prefixed either for upward or downward motion; no *own place* either for centripetal or centrifugal matter. Therefore in an infinite universe, there can be no motion at all (ss. 18, 19).

Ch. 8.—There cannot be more than one Kosmos. All things both rest and are moved, either by violence, or according to nature. In that place to which it is carried by nature, it also rests by nature: in that place to which it is carried by violence, it rests by violence. If the current which we see towards the centre is by violence, the opposite current must be natural; if earth is carried by violence from thence hitherward, its natural current must be from hence thitherward; and, if being here it rests without violence, its current towards here must be a natural one. For there is one only which is natural. Now, if there be many Kosmi, they must be alike in their nature, and must be composed of the same bodies, having the same nature and powers—fire, earth, and the two intermediate elements: for, if the bodies here are not the same as those in other Kosmi—if the same names are given in an equivocal sense and do not connote the same specific attributes—the name Kosmos must be equivocal also, and there cannot be many true or real Kosmi, in the same sense. To the parts or elements of each Kosmos, therefore, the centripetal and centrifugal currents are natural; for the simple currents are limited in number, and each element is so named as to connote one of them specially; and, if the currents are the same, the elements must also be the same everywhere. If there were another Kosmos, the earth in that would tend towards the centre of our Kosmos, and the fire in that would tend towards the periphery of our Kosmos. But this is impossible; since in that case the earth in that Kosmos would run away from the centre of its own Kosmos, and the fire therein would run away from its own periphery. Either we must not admit the same nature in the simple elements of the numerous Kosmi; or, if we do admit it, we must recognize only one centre and one periphery. This difficulty prevents our recognizing more than one Kosmos (ss. 1-6).

It is unphilosophical to affirm that the nature of these simple elements becomes changed according as they are more or

less distant from their own places. The difference is at best one of degree, not one of kind. That they *are* moved, we see plainly; there must therefore be some one current of motion natural to them. Accordingly every portion of the same element (or of elements the same in kind) must tend towards the same numerical place—towards this actual centre (πρὸς τόδε τι μέσον), or that actual periphery; and, if the tendency be towards one centre *specie*, but towards many centres *numero*, because particulars differ *numero* alone, and not *specie*, still the attribute will be alike in all, and will not be present in some portions, absent in others: I mean that, if the portions of this Kosmos are relative to each other, those in another Kosmos are in the like condition, and what is taken from this Kosmos will not be different from what is taken from the corresponding elements of any other Kosmos. Unless these assumptions can be overthrown, it is indisputably certain that there can be only one centre and one periphery; by consequence therefore, only one Kosmos and not more (ss. 7-10).

There are other reasons to show that there is a given terminus for the natural current both of fire and of earth. A thing moved, speaking generally, changes from something definite into something else definite; but there are different species of such change: the change called getting-well is from sickness to health; that called growth is from the little to great; that called local movement is from a terminus to another terminus, and local movements are specifically different from each other, according as the terminus *a quo* and the terminus *ad quem* is defined in each. The terminus is always a known and definite point: it is not accidental, nor dependent upon the arbitrium of the mover. Fire and earth therefore do not move on to infinity, but to definite points in opposite directions; and the local antithesis is between above and below: these are the two termini of the respective currents. Earth is carried with greater velocity, the nearer it approaches to the centre; fire is carried with greater velocity, the nearer it approaches to the periphery. This shows that its current does not stretch to infinity; for its velocity would then increase infinitely. Earth is not carried downward by the force of any thing else, nor fire upwards: not by any violence, nor by squeezing out (ἐκθλίψει), as some say. If this were so, a larger quantity of earth would move downward, and a larger quantity of fire upward, more slowly than a smaller. But the reverse is what occurs: the larger quantity of earth moves downward more rapidly than the smaller; if its motion had been caused by violence or by squeezing out, such motion would have slackened as it became more widely distant from the moving force (ss. 11-14).

We may deduce the same conclusion from the reasonings of the First Philosophy, also from the fact of circular motion which of necessity is constant both here and everywhere. Further, it is clear that there can be only one Kosmos; for, as there are three bodily elements, so there are three special places of such elements: one the undermost, at the centre; another the uppermost, at the periphery, revolving in a circular orbit; the third, in the intermediate place between the two, being the light or floating element (τὸ ἐπιπόλαζον); for, if not there, it must be outside of the Kosmos, which is impossible (ss. 15, 16).

CH. 9.—We must however now examine some reasons, which have been alleged to prove the contrary, and which seem to show, not only that there are many Kosmi, but even that there *must* be many, and that the hypothesis of one single Kosmos is inadmissible. It is urged that in all aggregates, natural as well as artificial, the Form by itself is one thing, and the Form implicated with Matter is another. When we declare the definition of a sphere or a circle, we do not include therein gold or brass, for this makes no part of the essence: if we mention these metals, it is when we cannot conceive or grasp anything beyond the particular case; for example, if we have one particular circle before us. Nevertheless, even here the circle in the abstract is one thing, and this particular circle is another: the first is the Form by itself, the last is the Form along with Matter, one among particular objects. Now, since the Heaven is perceivable by sense, it must be one among particular objects; for every thing perceivable is implicated with Matter. As such, it is *this* Heaven: to be *this* Heaven (Form along with Matter) is one thing; to be the Heaven simply and absolutely (Form without Matter) is another. Now, wherever there is Form, there either are or may be many distinct particulars; whether we admit (with Plato) that the Forms exist separately, or not. In all things where the Essence is implicated with Matter, we see that the particular manifestations are many and of indefinite number. Upon this reasoning therefore, there are or at least may be many Heavens: the supposition that there can be no more than one, is inadmissible (ss. 1-2).

But we must see how far this reasoning will hold. That the Form without Matter differs from the Form with Matter, is perfectly true. But this does not show that there must be many Kosmi; nor can there be many, if this one Kosmos exhausts all the matter that exists. If the matter of man were flesh and bone, and if a single man were formed, including all flesh and all bone indissolubly united; there could not possibly exist any other man; and the like is true about other objects; for, where the essence is implicated with an underlying matter, no object can come into existence unless some matter be furnished. The Kosmos, or Heaven, is a particular object, composed partly out of appropriate matter: but if it absorbs all the appropriate matter, no second Kosmos can come to pass. We shall now show that it does include all the appropriate matter (ss. 3-5).

The word Heaven has three different senses. 1. It means the essence of the extreme periphery of the universe, or the natural body which is there situated: we call this highest and farthest place Heaven, where we suppose all the divine agency to be situated (ἐν ᾧ τὸ θεῖον πᾶν ἱδρῦσθαί φαμεν). 2. It means the body continuous (τὸ συνεχὲς σῶμα) with the extreme periphery of the universe, wherein are contained Sun, Moon, and some of the Stars (Planets); for these we affirm to be in the Heaven. 3. In a third sense, it means the body circumscribed (περιεχόμενον) by this extreme periphery: for we usually call the Whole and the Universe, Heaven.—These being the three senses of Heaven, the Whole circumscribed by the extreme periphery must by necessity consist of all the natural and perceivable body existing, since there neither is nor can be any such outside of the Heaven. For, if there were any such outside of the Heaven, it must be either one of the elements or a compound thereof—either by nature or contrary to nature. For we have shown that each of the three elements—the circular, the centrifugal, and the centripetal—has its own special place by nature; and that, even if the place in which it now is were not its natural place, that place would be the natural place of another one among the three; for, if a place be contrary to nature in reference to one, it must be conformable to nature in reference to another. Neither of these three elements therefore can be outside of the Heaven, nor, of course, any of their compounds. And there exists no other body besides these; nor can their exist any other (ss. 6, 7).

We see therefore plainly that there neither is nor can be any mass of body (σώματος ὄγκον) outside of the Heaven; and that the Heaven comprehends all matter—all body natural and perceptible. So that there neither are, nor ever have been, nor ever can be, many Heavens: this one is unique as well as perfect. Nor is there either place, or vacuum, or time, outside of the Heaven. There is no place or vacuum; because, if there were, body might be placed therein; which we have shown to be impossible. There is no time; because time is the number of motion, and there can be no motion without some natural body; but there cannot exist any extra-celestial body. Neither, therefore, are the things outside of the Heaven in place, nor is there time to affect them with old age, nor do they undergo change of any kind. They are without any change of quality and without susceptibility of suffering; they remain, throughout the entire Æon, in possession of the best and most self-sufficing life. The word Æon is a divine expression proposed (θείως ἔφθεγκται) by the ancient philosophers: they call the Æon of each creature that end which circumscribes the natural duration of the creature's life. Pursuant to this same explanation, the end of the whole Heaven—the end comprising all time and the infinity of all things—is Æon, so denominated ἀπὸ τοῦ ἀεὶ εἶναι, immortal and divine. From this is suspended existence and life for all other things; for some closely and strictly, for others faintly and feebly. For it is a doctrine often repeated to us in ordinary philosophical discourse (ἐν τοῖς ἐγκυκλίοις φιλοσοφήμασι) respecting divine matters—that the Divine, every thing primary and supreme, is by necessity unchangeable; and this confirms what has been just affirmed. For there exists nothing more powerful than itself which can cause it to be moved (if there were, *that* would be more divine); nor has it any mean attribute; nor is it deficient in any of the perfections belonging to its nature. Its unceasing motion too is easily explained. For all things cease to be moved, when they come into their own place; but with the circular or revolving body the place in which it begins and in which it ends is the same (ss. 8-10).

Ch. 10.—We shall next discuss whether the Kosmos be generable or ungenerable, and perishable or imperishable; noticing what others have said on the subject before. All of them consider the Kosmos to be generated: but some think it (although generated) to be eternal; others look upon it as perishable, like other natural compounds; others again—Empedokles and Herakleitus—declare

it to be generated and destroyed in perpetual alternation. Now to affirm that it is generated and yet that it is eternal, is an impossibility: we cannot reasonably affirm any thing, except what we see to happen with all things or with most things; and, in the case before us, what happens is the very reverse of the foregoing affirmation, for all things generated are seen to be destroyed. Again, that which has no beginning of being as it is now—that which cannot possibly have been otherwise previously throughout the whole Æon—can never by any possibility change; for, if it could ever change, there must exist some cause, which, if it had existed before, would have compelled what is assumed to be incapable of being otherwise, to be otherwise. To those who say that the Kosmos has come together from materials previously existing in another condition, we may reply; If these materials were always in this prior condition and incapable of any other, the Kosmos would never have been generated at all; and, if it *has* been generated, we may be sure that the antecedent materials must have been capable of coming into another condition, and were not under a necessity to remain always in the same condition; so that aggregations once existing were dissolved, and disgregations brought into combination, many times over before the present Kosmos; at least they possibly may have been so: and this is enough to prove that the Kosmos is not indestructible (ss. 1-3).

Among those who maintain the Kosmos to have been generated yet to be indestructible, there are some who defend themselves in the following manner. They tell us that the generation of which they speak is not meant to be affirmed as a real past fact, but is a mere explanatory or illustrative fiction, like the generation of a geometrical figure, introduced to facilitate the understanding by pupils. But such an analogy cannot be admitted. For in geometry the conclusions are just the same, if we suppose all the figures existing simultaneously; but it is not so with the demonstrations which they tender about the generation of the Kosmos, where the antecedent condition and the consequent condition are the reverse of each other. Out of disorder (they tell us) things came into order: these two conditions cannot be simultaneous; generation must be a real fact, and distinction of time comparing the one condition with the other; whereas in geometrical figures no distinction of time is required (ss. 4-6).

To assume alternate generation and dissolution, over and over again, is in fact to represent the Kosmos as eternal, but as changing its form; as if you should suppose the same person to pass from boyhood to manhood and then back again from manhood to boyhood—calling that by the name of generation and destruction. For, if the elements come together, the aggregation resulting will not be accidental and variable but always the same, especially upon the assumptions of these philosophers. So that, if the whole Kosmos, remaining continuous, is sometimes arranged in one way, sometimes in another, it is these arrangements which are generated and destroyed, not the Kosmos itself (ss. 7, 8).

Total generation, and total destruction without any renovation, of Kosmos might be possible, if there were an infinity of Kosmi, but cannot be possible with only one; for anterior to the moment of generation there existed the antecedent condition, which, never having been generated, could not be destroyed (s. 9).

There are some who think (with Plato in Timæus) that the non-generable may yet be destroyed, and that the generated may be indestructible. We have combated this opinion on physical grounds, respecting the Heaven specially. We shall now treat the subject upon universal reasonings (*i.e.*, belonging to Logic or Metaphysics—*πρὸς οὓς φυσικῶς μὲν περὶ τοῦ οὐράνου μόνον εἴρηται· καθόλου δὲ περὶ ἅπαντος σκεψαμένοις, ἔσται καὶ περὶ τούτου δῆλον*—s. 10).

CH. 11.—In this reasoning, the first step is to point out that Generable and Non-Generable, Destructible or Indestructible, are words used in many different senses, which must be discriminated (*πολλαχῶς λεγόμενα*). If a man uses these words in an affirmative proposition without such discrimination, his affirmation is indeterminate; you cannot tell in which of their many different senses he intends to affirm. Non-Generable means: (1) That which now is, having previously not been, even though without either generation or change, as, to touch or to be moved; for, according to some persons, touching or being moved are not cases of generation; you cannot become touching, or become moved; you are moved, or you are not moved; you touch, or you do not touch (*οὐ γὰρ εἶναι γίνεσθαί φασιν ἁπτόμενον, οὐδὲ κινούμενον.* He means, I presume, that to touch, and to be moved, are instantaneous acts, though how they can be said to occur *ἄνευ μεταβολῆς*, I do not see.). It means: (2) That which, though capable of coming to pass or of having come to pass (*ἐνδεχόμενον γίνεσθαι ἢ γενέσθαι*), nevertheless is not; for this too is non-generable, since it might have come to be. Again, it means: (3) That which

cannot by possibility sometimes exist, sometimes not exist. Impossible has two meanings: (1) That of which you cannot truly say that it might be generated (ὅτι γένοιτ' ἄν); (2) That which cannot be generated easily, or quickly, or well (καλῶς). So also the Generable (τὸ γεννητόν) means: (1) That which, not existing previously, afterwards exists at one time and not at another, whether generated or not (he seems here to point to τὸ ἅπτεσθαι or τὸ κινεῖσθαι); (2) The possible, whether it be the strictly possible, or the easily possible; (3) That of which there is generation out of the non-existent into existence, whether it now does actually exist, or may exist hereafter. The Destructible and Indestructible (φθαρτὸν καὶ ἄφθαρτον) have similar differences of meaning (ss. 1-6).

If we say that a man can raise a weight of 100 pounds, or march 100 stadia, we speak always with reference to a certain extreme, meaning to imply that he can also raise a weight of 50, 40, 30 pounds, and that he can also walk 50, 40, 30 stadia. If we say that he cannot raise a weight of 100 pounds, we mean to imply, *à fortiori*, that he cannot raise a weight of 110 pounds. In regard to sight and hearing, the case is opposite; he who can see a small object, can certainly see a large one; he who can hear a faint sound, can certainly hear a loud one. But he who can see a large object, is not necessarily able to see a small one; he who can hear a loud sound, is not necessarily able to hear a faint one. In sight and hearing, superior power is indicated by the less including the greater; in motion, by the greater including the less (ss. 7-8).

Ch. 12.—If there are some things capable both of existence and of non-existence, we must define on which falls the major portion of time; for, if we cannot in either case define the time, and can only say that it is greater than any assumed length of time and never less than any assumed length,—the same thing will be capable both of existence and of non-existence for an infinite time; which is an impossibility. We must take our departure from this principle: Impossibility is one thing, Falsehood another. Both the impossible and the false are, however, either conditional (as when it is said to be impossible that the triangle should have its three angles equal to two right angles, if such and such things are granted, and that the diameter should be commensurate with the periphery, if such and such positions were true), or absolute. But there are matters absolutely false, which are not absolutely impossible. When you are standing, I affirm that you are sitting: this is absolutely false, but not absolutely impossible. On the other hand, if I affirm that you are at the same time sitting and standing, or that the diameter is commensurable with the periphery, the proposition is not merely absolutely false, but absolutely impossible. An assumption simply false is not the same thing as an assumption absolutely impossible: from an impossible assumption there follow other impossibilities. The power of sitting or standing means that you can do either one at any given time—one at one time, the other at another; but not that you can do both at the same time. But, if any thing has throughout an infinite time the power of doing more things than one, it must have the power of doing more things than one at the same time; for this infinite time comprehends its whole existence. Accordingly, if any thing existing for an infinite time is nevertheless destructible, this means that it has the possibility not to exist. This being a possibility, let us imagine it realized: then the thing in question will both exist actually for an infinite time and yet not exist; which is a consequence not only false, but impossible, and thus proves the premiss assumed to be impossible (*i.e.*, that a thing existing for an infinite time is nevertheless destructible). We thus see that what exists always is absolutely indestructible (ss. 1-3). It is also ungenerable; for, if generable, there will be a possibility that at some time or other it did not exist. That is generable, which may possibly have not existed at some anterior time, finite or infinite: so that, if τὸ ἀεὶ ὄν cannot possibly not exist, it cannot be generable. Now that which is always possible to exist, has, for its correlate negative (ἀπόφασις), that which is not always possible to exist; and that which is always possible not to exist, has, for its contrary, that which is not always possible not to exist. These two negatives must of necessity be true of the same subject: there must be something of which we may truly say—It has no possibility always to exist—It has no possibility always not to exist. This therefore is something intermediate between that which always exists, and that which always exists not, viz., That which may exist and may not exist (καὶ εἶναι μέσον τοῦ ἀεὶ ὄντος καὶ τοῦ ἀεὶ μὴ ὄντος, τὸ δυνάμενον εἶναι καὶ μὴ εἶναι); for both the negative predicates will find application, if it do not exist always. The possible to exist, and the possible not to exist, must therefore be the same thing—a mean between the two above-mentioned extremes (ss. 4, 5).

After a long metaphysical deduction, occupying from sections 6 to 17, Aristotle proceeds as follows.

We may also discern in the following manner that nothing which has been once generated, can continue indestructible; nothing which is ungenerable and which always existed heretofore, can ever be destroyed. For it is impossible that any thing which arises spontaneously (*ἀπὸ τοῦ αὐτομάτου*) can be either indestructible or ungenerable. The Spontaneous, and the Casual (*τὸ ἀπὸ τῆς τύχης*), are in antithesis to the always or the most frequently Ens or Fiens (*παρὰ τὸ ἀεὶ καὶ τὸ ὡς ἐπὶ τὸ πολὺ ἢ ὂν ἢ γινόμενον*—s. 18); but that which has existed for an infinite or a very long time, must belong to this last category. Accordingly, such things must by nature sometimes exist, sometimes not exist. In them, both sides of the contradiction are alike true, owing to the matter of which they are composed: they exist, and they do not exist. But you cannot say with truth now that the thing exists last year; nor could you say last year that it exists now. Having once been non-existent, it cannot be eternal for future time; for it will still possess in future time the possibility of non-existence, yet not the power of non-existing at the moment when it does exist, nor with reference to last year and to past time; there being no power bearing upon past time, but only on present and future time. (Sections 21 and 22 are hardly intelligible to me.)

On physical grounds also it appears impossible that what is eternal in the past should be destroyed afterwards, or that what did not exist at some former time should afterwards be eternal. Those things which are destructible, are all of them generable and changeable (*γεννητὰ καὶ ἀλλοιωτὰ πάντα*). Those things which exist by nature, are changed by their opposites and by their component materials, and are destroyed by the same agencies (s. 23).

Book II.

Ch. 1.—The Heaven has not been generated nor can it be destroyed, as some (Plato) affirm: it is one and eternal, having neither beginning nor end of the whole Æon, holding and comprehending in itself infinite time. This we may believe not merely from the foregoing reasonings, but also from the opinion of opponents who suppose the Kosmos to be generated. For, since their opinion has been shown to be inadmissible, and our doctrine is at least admissible, even thus much will have great force to determine our faith in the immortality and eternity of the Heaven. Hence we shall do well to assist in persuading ourselves that the ancient doctrines, and especially those of our own country, are true—That there is among the substances endowed with motion one immortal and divine, whose motion is such that it has itself no limit but is rather itself the limit of all other motions, limit being the attribute of the circumscribing substance. The circular motion of the Heaven, being itself perfect, circumscribes and comprehends all the imperfect motions which are subject to limit and cessation. It has itself neither beginning nor end, but is unceasing throughout infinite time: in regard to other motions, it is the initiatory cause to some, while it is the recipient of the cessation of others (ss. 1, 2).

The ancients assigned Heaven to the Gods, as the only place which was immortal, and our reasonings show that it is not merely indestructible and ungenerable, but also unsusceptible of all mortal defect or discomfort. Moreover it feels no fatigue, because it is not constrained by any extraneous force to revolve contrary to its own nature: if it were so, that would be tiresome, and all the more since the motion is eternal; it would be inconsistent with any supremely good condition. The ancients therefore were mistaken in saying that the Heaven required to be supported by a person named Atlas: the authors of this fable proceeded upon the same supposition as recent philosophers; regarding the celestial body as heavy and earthy, they placed under it, in mythical guise, an animated necessity (*ἀνάγκην ἔμψυχον*), or constraint arising from vital force. But they are wrong; and so is Empedokles, when he says that the Heaven is kept permanently in its place by extreme velocity of rotation, which counteracts its natural inclination downwards (*οἰκείας ῥοπῆς*). Nor can we reasonably suppose that it is kept eternally in its place (*i.e.*, contrary to its own nature) by the compulsion of a soul or vital force (*ὑπὸ ψυχῆς ἀναγκαζούσης*): it is impossible that the life of a soul thus acting can be painless or happy. The motion which it causes, being accompanied with violence and being also perpetual (as it is the nature of the First Body to cause motion continuously throughout the Kosmos), must be a tiresome duty, unrelieved by any reasonable relaxation; since this soul enjoys no repose, such as the letting down of the body during sleep affords to the soul of mortal animals, but is

subjected to a fate like Ixion's—ceaseless and unyielding revolution. Now our reasonings, if admissible, respecting the First or Circular Motion (πρώτης φορᾶς) afford not merely more harmonious conceptions respecting its eternity, but also the only way of speaking in language which will be allowed as consistent with the vague impressions respecting the Deity (τῇ μαντείᾳ τῇ περὶ τὸν θεόν). Enough, however, of this talk for the present (ss. 3-6).

Ch. 2.—Since the Pythagoreans and others recognize a Right and Left in the Heaven, let us enquire whether such ἀρχαί can properly be ascribed to the body of the Universe; for, if these can be ascribed, much more may the other ἀρχαί prior to them be ascribed to it. Of ἀρχαὶ κινήσεως (*termini a quibus*), there are three couples: (1) Upwards and Downwards; (2) Forward and Backward; (3) Right and Left. All the three exist in animals; but the first alone is found in plants. All the three are in all perfect bodies, and in all animated bodies which have in themselves a beginning of motion; but not in inanimate bodies, which have not in themselves a beginning. Each of these three ἀρχαί or διαστάσεις is true and appropriate as an attribute; but among the three, Upwards and Downwards comes first in the order of nature, Right and Left, last. The Pythagoreans are to be blamed for dwelling on Right and Left, and not noticing the other two pairs which are prior in the order of nature and more appropriate, and for supposing that Right and Left are to be found in every thing. Upward is the principle of length; Right, of breadth; Forward, of depth. Again, from upward movement comes growth; movement from the right is local movement; movement from before is movement of sense (ἡ κατὰ τὴν αἴσθησιν), or the line in which sensible impressions are propagated (ἐφ' ᾧ αἱ αἰσθήσεις). Up is the source from whence motion originates (τὸ ὅθεν ἡ κίνησις—s. 6); Right, the point from which the direction of the motion starts; Forward, the point towards which it goes (τὸ ἐφ' ὅ). In inanimate bodies (which are either not moved at all, or only moved in one manner and direction, as fire only upwards, earth only downwards), we speak of above and below, right and left, only with reference to ourselves, and not as attributes really belonging to these objects; for by inverting the objects these attributes will be inverted also, right will become left, and left will become right. But in animated objects, which have in themselves an ἀρχὴ κινήσεως, a real right and left, a real upward and downward, are to be recognized: of course therefore in the Heaven, which is an animated object of this character (ἔμψυχος). For we must not make any difficulty in consequence of the spherical figure of the universe, or suppose that such a figure excludes real right and left, the parts being all alike and all in perpetual motion. We must conceive the case as like that of a person having a real right and left, distinct in attributes, but who has been enclosed in a hollow sphere: he will still have the real distinct right and left, yet to a spectator outside he will appear not to have it. In like manner, we must speak of the Heaven as having a beginning of motion; for, though its motion never did begin, yet there must be some point from which it would have taken its departure, if it ever had begun, and from which it would recommence, if it ever came to a standstill. I call the length of the Heaven, the distance between the poles—one of the poles above, the other below. Now the pole which is above us, is the lower pole; that which is invisible to us, is the upper pole. For that is called right, in each object, from whence local movement takes its departure, or where local movement begins. But the revolution of the Heaven begins on the side where the stars rise; this, therefore, is the true right, and the side on which they set, is left. If, therefore, it begins from the right, and revolves round to the right (ἐπὶ τὰ δέξια περιφέρεται), the invisible pole must be the upper pole; for, if the visible pole were the upper, the movement of the Heaven would be to the left, which we deny to be the fact. The invisible pole is therefore the upper, and those who live near it are in the upper hemisphere, and to the right (πρὸς τοῖς δεξίοις); we on the contrary are in the lower hemisphere, and to the left. The Pythagoreans are in error when they say that we are in the upper hemisphere, and to the right, and that inhabitants of the southern hemisphere are in the lower hemisphere and to the left. But, speaking with reference to the second revolution (τῆς δευτέρας περιφορᾶς) or that of the planets, which is in the contrary direction to the first revolution or that of the First Heaven, it is we who are in the upper hemisphere and on the right side; it is the inhabitants of the southern hemisphere, who are in the lower hemisphere and on the left side: that is, it is we who are on the side of the beginning of motion, they who are on the side of the end (ss. 1-10).

Ch. 3.—I have previously laid it down, that circular movement is not opposite to circular. But, if this be the case, what is the reason that there are many diffe-

rent revolutions in the Heaven? This is what I shall now enquire, fully aware of the great distance from which the enquiry must be conducted (πόῤῥωθεν)—not so much a distance in place, as owing to the small number of accompanying facts which can be observed by the senses respecting them.

The cause must be looked for in this direction. Every thing which performs a work, exists for the sake of that work. Now the work of Deity is immortality, or eternal life; so that the divine substance must of necessity be in eternal motion. The Heaven is a divine body and has for that reason the encyclical body, whose nature it is to be moved for ever in a circle. But why is not the whole body of the Heaven thus constituted (*i.e.*, encyclical)? Because it is necessary that some portion of its body should remain stationary in the centre; and no portion of the encyclical body can possibly remain stationary, either in the centre or elsewhere. For, if it could, its natural motion (*i.e.*, the motion of that supposed portion) would be towards the centre; whereas its natural motion is circular; and it cannot move towards the centre contrary to its nature, because on that supposition its motion would not be eternal: no motion contrary to nature can be eternal. Moreover that which is contrary to nature is posterior to that which is natural; it is a deviation therefrom arising in the course of generation (s. 1).

Hence it is necessary that earth should exist, the nature of which it is to rest in the centre (*i.e.*, the divine encyclical body will not suffice alone, without adjuncts of different nature). I assume this for the present; more will be said about it anon.

But, if earth exists, fire must exist also; for of two contraries, if the one exist by nature, the other must exist by nature also. For the matter of contraries is the same, and Form (positive and affirmable) is prior by nature to Privation (for example, hot is prior to cold); now rest and gravity denote the privation of motion and lightness (s. 2—*i.e.*, fire is even prior in nature to earth, as having the positive essences motion and levity, while earth has for its essence the privation thereof).

Again, if fire and earth exist, the two other elements intermediate between them must also exist; for each of the four elements has its peculiar mode of contrariety with reference to each. At least let this be assumed now: I shall show it at length presently.

Now, these points being established, we see that generation must necessarily come to pass, because no one of the four elements can be eternal: they act upon each other, and suffer from each other, with contrary effects; they are destructive of each other. Besides, each of them has a mode of motion natural and appropriate to it, but this mode of motion is not eternal (because it is either to the centre or to the circumference and therefore has a natural terminus). It is not reasonable to suppose that any Mobile can be eternal, whose natural mode of motion cannot be eternal (s. 3).

Thus the four elements are not eternal, but require to be renewed by generation; therefore generation must come to pass. But, if generation be necessary, more than one revolution of the celestial body is indispensably required: two at least, if not more. For, if there were no other revolution except that of the First Heaven, that is consistent only with a perfectly uniform condition of the four elements in relation to each other (s. 4).

When the question is asked, therefore, Why there are (not one only but) several encyclical bodies? I answer: Because generation *must* come to pass. There must be generation, if there be fire; there must be fire and the other elements, if there be earth; there must be earth, because something must remain stationary eternally in the centre, if there is to be eternal revolution (s. 5).

Ch. 4.—The Heaven is by necessity spherical: this figure is at once both most akin to its essence and first in its own nature. I shall begin with some observations respecting figures generally —plane and solid, as to which among them is the first. Every plane figure is either rectilinear or curvilinear; the former is comprehended by many lines, the latter only by one. Now, since in every department one is prior to many and simple to compound, the first of all plane figures must be the circle. Moreover, since that is perfect which can receive nothing additional from without, and since addition can be made to every straight line, but none whatever to the line circumscribing a circle, it is plain that this latter is perfect; and therefore the circle is the first of all plane figures, and the sphere of all solid figures (ss. 1, 2). This doctrine appears most reasonable when we set out the different figures, each with a number belonging to it in numerical order. The circle corresponds to One, the triangle to Two, since its three angles are equal to two right angles; whereas, if we assign number One to the triangle and place that first, we can find no number fit for the circle: the circle will be no longer recognized as a figure (s. 4).

Now, since the first figure belongs to the first body, which is that in the extreme or farthest circumference, this body which revolves constantly in a circle, will be spherical in figure. That which is continuous with it even to the centre, will also be spherical; and all the interior parts are in contact and continuity with it: the parts below the sphere of the planets touch the sphere above them. So that the whole revolving current, interior and exterior, will be spherical; for all things touch and are continuous with the spheres (s. 5).

There is another reason too why the universe is spherical in figure, since it has been shown to revolve in a circle. I have proved before that there exists nothing on the outside of the universe; neither place nor vacuum. If the figure of the Kosmos, revolving as it does in a circle, were any thing else but spherical —if it were either rectilinear or elliptical —it could not possibly cover exactly the same space during all its revolutions: there must therefore be place and vacuum without it; which has been shown to be impossible (s. 6).

Farthermore, the rotation of the Heaven is the measure of motions, because it is the only one continuous and uniform and eternal. Now in every department the measure is the least, and the least motion is the quickest; accordingly the rotation of the Heaven will be the quickest of all motions (s. 7). But among all curved lines from the same back to the same, the circumference of the circle is the shortest, and motion will be quickest over the shortest distance. Accordingly, since the Heaven revolves in a circle and with the quickest of all motions, its figure must be spherical (s. 8).

We may also draw the same conclusion from the bodies fixed in the central parts of the Kosmos. The Earth in the centre is surrounded by water; the water, by air; the air, by fire. The uppermost bodies surround the fire, following the like proportion or analogy; being not continuous therewith, but in contact therewith. Now the surface of water is spherical; and that which is either continuous with the spherical or surrounds the spherical, must itself be spherical also (s. 9). That the surface of the water is truly spherical, we may infer from the fact, that it is the nature of water always to flow together into the lowest cavities, that is, into the parts nearest to the centre (s. 10).

From all the foregoing reasonings, we see plainly that the Kosmos is spherical, and moreover turned with such a degree of exact sphericity (*κατὰ ἀκρίβειαν ἔντορνος οὕτως*), that no piece of human workmanship nor any thing ever seen by us on earth can be compared to it. For none of the component materials here on earth is so fit for receiving perfect level and accuracy as the nature of the First or Peripheral Body; it being clear that, in the same proportion as water is more exactly spherical, the elements surrounding the water become more and more spherical in proportion as they are more and more distant from the centre (s. 11).

CH. 5.—Circular revolution may take place in two directions; from the point A on one side towards B, or on the other side towards C. That these two are not contrary to each other, I have already shown. But, since in eternal substances nothing can possibly take place by chance or spontaneity, and since both the Heaven and its circular revolution are eternal, we may enquire what is the reason why this revolution takes place in one direction and not in the other. This circumstance either depends upon some first principle, or is itself a first principle (s. 1). Perhaps some may consider it a mark either of great silliness, or great presumption, to declare any positive opinion at all upon some matters, or upon all matters whatever, leaving out nothing. But we must not censure indiscriminately all who do this: we must consider what is the motive which prompts each person to declare himself, and with what amount of confidence he affirms, whether allowing for human fallibility or setting himself above it. Whenever a man can find out exact and necessary grounds for the conclusions which he propounds, we ought to be grateful to him: here we must deliver what appears to be the truth. Nature (we know) always does what is best among all the practicable courses. Now the upper place is more divine than the lower, and accordingly among rectilinear currents, that which is directed upwards is the more honourable. In the same manner, the current forwards is more honourable than backwards; and the current towards the right more honourable than that towards the left—as was before laid down. The problem above started indicates to us that there is here a real Prius and Posterius—a better and a worse; for, when we recognize this, the difficulty is solved. The solution is that this is the best practicable arrangement, viz., that the Kosmos is moved in a motion, simple, never-ending, and in the most honourable direction (*ἐπὶ τὸ τιμιώτερον*, s. 2).

CH. 6.—I have now to show that this motion of the First Heaven is uniform and not irregular (*ὁμαλὴς καὶ οὐκ ἀνώμαλος*): I speak only of the First Heaven

and of the First Rotation; for in the substances lower than this many rotations or currents have coalesced into one. If the motion of the First Heaven be irregular, there will clearly be acceleration and remission of its motion, and an extreme point or maximum (ἀκμή) thereof. Now the maximum of motion must take place either at the terminus *ad quem*, as in things moved according to nature; or at the terminus *a quo*, as in things moved contrary to nature; or during the interval between, as in things thrown (ἐν τοῖς ῥιπτουμένοις). But in circular motion, there is neither terminus *a quo*, nor terminus *ad quem*, nor middle between the two—neither beginning, nor end, nor mean; for it is eternal in duration, compact as to length or space moved over, and unbroken (τῷ μήκει συνηγμένη καὶ ἄκλαστος). It thus cannot have any maximum or acceleration or remission; and of course, therefore, it cannot be irregular (s. 1).

Besides, since every thing that is moved is moved by some thing, the irregularity, if there be such, must arise either from the Movens, or the Motum, or both: the power of the Movens, or the quality of the Motum, or both, must undergo change. But nothing of the sort can happen with the Motum, being in this case the Heaven; for it has been shown to be a First, simple, ungenerable, indestructible, and in every way unchangeable. Much more then is it reasonable to believe that the Movens is such; for that which is qualified to move the First, must be itself a First (τὸ γὰρ πρῶτον τοῦ πρώτου κινητικόν); that which is qualified to move the simple, must be itself simple, &c. If then the Motum, which is a body, undergoes no change, neither will the Movens, being as it is incorporeal (s. 2). Accordingly the current, or motion (φορά), cannot possibly be irregular. For, if it comes to pass irregularly, its irregularity either pervades the whole, the velocity becoming alternately more or less, or certain parts only. But, in regard to the parts separately, there is certainly no irregularity: if there had been, the relative distances of the stars one from the other would have varied in the course of infinite time; now no such variation in their distances has ever been observed. Neither in regard to the whole is there any irregularity. For irregularity implies relaxation, and relaxation arises in every subject from impotence. Now impotence is contrary to nature: in animals, all impotences (such as old age or decay) are contrary to nature; for all animals, perhaps, are compounds put together out of elements each of which has a different place of its own and not one of which is in its own place. In the First Bodies, on the other hand, which are simple, unmixed, in their own places, and without any contrary, there can be no impotence, and therefore neither relaxation nor intensification, which always go together (εἰ γὰρ ἐπίτασις, καὶ ἄνεσις, s. 3). Besides, we cannot with any reason suppose that the Movens is impotent for an infinite time, and then again potent for an infinite time: nothing contrary to nature lasts for an infinite time, and impotence is contrary to nature; nor can it be for an equal time contrary to nature and agreeable to nature—impotent and potent. If the motion relaxes, it cannot go on relaxing for an infinite time, nor go on being intensified, nor the one and the other alternately. For in that case the motion would be infinite and indeterminate; which is impossible, since every motion must be from one term to another term and also determinate (s. 4: ἄπειρος γὰρ ἂν εἴη καὶ ἀόριστος ἡ κίνησις. ἅπασαν δέ φαμεν ἔκ τινος εἴς τι εἶναι, καὶ ὡρισμένην—*i.e.*, all motion must be determined both in distance and direction).

Again, the supposition may be made that there is a minimum of time required for the revolution of the Heaven, in less than which the revolution could not be completed; just as there is a minimum of time indispensable for a man to walk or play the harp. Admitting this supposition, there cannot be perpetual increase in the intensity or velocity of the motion (the increase has an impassable limit), and therefore there cannot be perpetual relaxation; for both are on the same footing (s. 5).

It might be urged, indeed, that intensification and relaxation go on alternately; each proceeding to a certain length, and then giving place to the other. But this is altogether irrational—nothing better than a gratuitous fiction. Besides, if there were this alternation, we may reasonably assume that it could not remain concealed from us; for contrasting conditions coming in immediate sequence to each other are more easily discerned by sense. What has been said, then, is sufficient to prove—That the Heaven or Kosmos is one and only one; that it is ungenerable and eternal; that its motion is uniform (s. 6).

CH. 7.—Next in order, I have to speak of what are called the Stars (τῶν καλουμένων ἄστρων). Of what are they composed? What is their figure? What are their motions?

It is consistent with the foregoing reasonings, as well as in itself the most rational doctrine, to conceive each of the stars as composed of portions of that body in which its current of motion takes

place; that is, of that body, whose nature it is to move in a circle. For those who affirm the stars to be fire say this because they believe the upper body to be fire, assuming it as reasonable that each thing should be composed of the elements in which it is; and I assume the same also (s. 1). The heat and light of the stars arises from their friction with the air in their current of motion. If it is the nature of motion to inflame pieces of wood, and stones, and iron, it is still more reasonable that what is nearest to fire (that is, air) should be so inflamed. We see that darts projected are so inflamed, that their leaden appendages are melted; and, these being thus inflamed, the air around them must be modified in the same manner. Now objects like these darts are thus violently heated, because they are carried along in the medium of the air, which through the shock given by their motion becomes fire. But each of the upper bodies or stars is carried round (not in the air, but) in its appropriate sphere, so that they themselves are not inflamed; while the air which is under the sphere of the encyclical body becomes of necessity heated by the rotation of that sphere; and most of all at the point where the Sun has happened to be fastened in (καὶ ταύτῃ μάλιστα, ᾗ ὁ ἥλιος τετύχηκεν ἐνδεδεμένος).

Let it then be understood, that the stars are neither composed of fire, nor are they carried round in the medium of the fire (s. 2).

Ch. 8.—It is seen as a fact, that both the stars, and the entire Heaven, change their place (μεθιστάμενα). Now, in this change, we must assume either that both continue at rest, or that both are in motion, or that one is at rest, and the other is in motion. Now it is impossible that both can be at rest, at least if we assume the earth to be at rest; for the facts which we see would not have taken place, upon that supposition (s. 1). Either therefore both are in motion, or one is in motion and the other at rest. Now, if both are in motion, it is against reason that the stars and the circles in which they are fastened should have equal velocities of motion. Each one of them must be equal in velocity to the circle or sphere in which it is carried, since all come back round along with their circles to the same position; so that in one and the same time, the star has gone round its circle, and the circle has completed its revolution. It is not reasonable to suppose that the velocities of the stars and the magnitudes of the circles should be in the same proportion. Comparing one circle with another, indeed, it is not only not absurd, but even necessary, that the velocities should be in proportion to the magnitudes; but it is not reasonable that each of the stars in these circles should be of such velocity. For, if it be necessary that what is carried round in the larger circle should have the greater velocity, the consequence would be that, if the stars in one circle were transferred to another, their motions would become accelerated or retarded; which is equivalent to saying that they have no motion of their own at all, but are carried round by the revolution of the circles (s. 2). If, on the contrary, it be not necessary, but a spontaneous coincidence (εἴτε ἀπὸ ταὐτομάτου συνέπεσεν) that what is carried round in the greater circle has the greater velocity, neither upon this supposition is it reasonable that in all the circles without exception the circumference should be greater, and the motion of the star fastened in the greater circle quicker, in the same proportion. That this should happen with one or two of them, might be reasonably expected; but that it should happen with all alike, savours of fiction. Moreover chance has no place in matters according to nature; nor is that which occurs everywhere and belongs to all, ever the produce of chance (s. 3).

So much for the hypothesis, that both stars and circles are in motion. Let us now assume that one is at rest, and the other in motion; and first, let the circles be at rest, and the stars in motion. This again will lead to absurdities; for we shall still be unable to explain how it happens that the outermost stars are moved most quickly, and that their velocities are proportioned to the magnitudes of the circles.

Since then we cannot assume either that both are moved, or that the star alone is moved, we must adopt the third supposition, that the circles are moved, and that the stars, being themselves at rest, are fastened in the circles and carried round along with them. This is the only hypothesis which entails no unreasonable consequences. For it is reasonable that, of circles fastened round the same centre, the greater velocity should belong to the greatest. For, as in all the varieties of body the heavier fragment is carried with greater velocity than the lighter in its appropriate motion, so it happens with the encyclical body. When two straight lines are drawn from the centre, the segment of the greater circle intercepted between them will be greater than the segment of the smaller; and it is consistent with reason that the greater circle should be carried round in equal time. This is the reason why the Kosmos is not split in-

separate parts; another reason is, because the universe has been shown to be continuous (ss. 4, 5).

Now we all agree that the stars are of spherical figure: and spherical bodies have two motions of their own—rolling and rotatory (κύλισις καὶ δίνησις). If they were moved of themselves, they would be moved in one or other of these two ways; but we see that they are so in neither. They do not rotate; for, if they did, they would remain always in the same place, which contradicts universal observation and belief. Besides, it is reasonable to suppose that all the stars move in the same manner, but the Sun is the only one that is seen so to move, when he rises or sets; and he too, not by any movement of his own, but through the distance of our vision, which when stretched to a great distance, rotates from weakness (s. 6). This is perhaps the reason why the stars fastened (in the outer sphere) twinkle, while the planets do not twinkle; for the planets are near to us, so that our vision reaches them while yet strong; whereas in regard to the unmoved stars it is made to quiver in consequence of the great distance from being stretched out too far, and its quivering causes the appearance of motion in the star. For there is no difference between moving the vision and moving the object seen (οὐθὲν γὰρ διαφέρει κινεῖν τὴν ὄψιν ἢ τὸ ὁρώμενον—s. 6).

Again, neither do the stars roll nor revolve forward. For that which rolls forward must necessarily turn round; but the same side of the moon—what is called the face of the moon—is always clearly visible to us (s. 7).

Since it is reasonable to believe, therefore, that, if the stars were moved in themselves, they would be moved in their own special variety of motion (*i.e.*, rolling or rotatory), and since it has been shown that they are not moved in either of these two ways, we see plainly that they cannot be moved in themselves (but are carried round in the revolution of the Aplanês).

Besides, if they were moved in themthemselves, it is unreasonable that Nature should have assigned to them no organ suitable for motion, since Nature does nothing by haphazard; and that she should have been considerate in providing for animals, while she overlooked objects so honourable as the stars. The truth rather is, that she has withheld from them, as it were by express purpose, all aids through which it was possible for them to advance forward in themselves, and has placed them at the greatest possible distance from objects furnished with organs for motion (s. 8).

Hence it would seem to be the reasonable doctrine—That the entire Heaven is spherical, and that each of the stars (fastened in it) is also spherical. For the sphere is the most convenient of all figures for motion in the same place, so that the Heaven being spherical would be moved most rapidly and would best maintain its own place. But for forward motion the sphere is of all figures the most inconvenient; for it least resembles self-moving bodies; it has no outlying appendage or projecting end, as rectilinear figures have, and stands farthest removed from the figures of marching bodies.

Since therefore it is the function of (δεῖ) the Heaven to be moved by a motion in the same place (κινεῖσθαι τὴν ἐν αὑτῷ κίνησιν), and that of the stars not to make any advance by themselves (τὰ ἄλλα δ' ἄστρα μὴ προϊέναι δι' αὑτῶν), it is with good reason that both of them are spherical. For thus will the Heaven best be moved, and the stars will best be at rest.

Ch. 9.—From what I have said, it is plain that those who affirm that the revolving celestial bodies emit in their revolutions sounds harmonious to each other, speak cleverly and ingeniously, but not consistently with the truth. There must necessarily be sound (they say) from the revolution of such vast bodies. Since bodies near to us make sound in motion, the sun, moon, and stars, being so much larger and moving with so much greater velocity, must make an immense sound; and, since their distances and velocities are assumed to be in harmonic proportion, the sounds emitted in their revolution must also be in harmony. To the question put to them—Why do we not hear this immense sound? they reply, that we have been hearing it constantly from the moment of our birth; that we have no experience of an opposite state, or state of silence, with which to contrast it, and that sound and silence are discriminated only by relation to each other (ὥστε μὴ διάδηλον εἶναι πρὸς τὴν ἐναντίαν σιγήν· πρὸς ἄλληλα γὰρ φωνῆς καὶ σιγῆς εἶναι τὴν διάγνωσιν); that men thus cease to be affected by it, just as blacksmiths from constant habit cease to be affected by the noise of their own work (s. 1).

The reasoning of these philosophers (the Pythagoreans), as I have just said, is graceful and poetical, yet nevertheless inadmissible. For they ought to explain, upon their hypothesis, not merely why we hear nothing, but why we experience no uncomfortable impressions apart from hearing. For prodigious sounds pierce through and destroy the continuity even of inanimate bodies; thus thunder splits

up stones and other bodies of the greatest strength. The impression produced here by the sound of the celestial bodies must be violent beyond all endurance. But there is good reason why we neither hear nor suffer any thing from them; viz., that they make no sound. The cause thereof is one which attests the truth of my doctrine laid down above—That the stars are not moved of themselves, but carried round by and in the circle to which they are fastened. Bodies thus carried round, make no sound or shock: it is only bodies carried round of themselves that make sound and shock. Bodies which are fastened in, or form parts of, a revolving body, cannot possibly sound, any more than the parts of a ship moving, nor indeed could the whole ship sound, if carried along in a running river. Yet the Pythagoreans might urge just the same reasons to prove that bodies so large as the mast, the stern, and the entire ship, could not be moved without noise. Whatever is carried round, indeed, in a medium not itself carried round, really makes sound; but it cannot do so, if the medium itself be carried round continuously. We must therefore in this case maintain that, if the vast bodies of the stars were carried round in a medium either of air or of fire (whose motion is rectilinear), as all men say that they are, they must necessarily make a prodigious sound, which would reach here to us and would wear us out (*διακναίειν*). Since nothing of this nature occurs, we may be sure that the stars are not carried round in a current of their own, either animated or violent. It is as if Nature had foreseen the consequence, that, unless the celestial motions were carried on in the manner in which they are carried on, nothing of what now takes place near us (*τῶν περὶ τὸν δεῦρο τόπον*), could have been as it is now. I have thus shown that the stars are spherical, and that they are not moved by a motion of their own (ss. 2-5).

CH. 10.—Respecting the arrangement of the stars—how each of them is placed, some anterior others posterior, and what are their distances from each other—the books on astronomy must be consulted and will explain. It consists with the principles there laid down, that the motions of the stars (planets) should be proportional to their distances, some quicker, others slower. For, since the farthest circle of the Heaven has a revolution both simple and of extreme velocity, while the revolutions of the other stars (planets) are many in number and slower, each of them being carried round in its own circle in the direction contrary to that of the first or farthest circle of the Heaven, the reasonable consequence is, that that planet which is nearest to the first and simple revolving circle takes the longest time to complete its own (counter-revolving) circle, while that which is most distant from the same circle takes the shortest time, and the remaining planets take more or less time in proportion as they are nearer or farther. For the planet nearest to the first revolving circle has its own counter-revolution most completely conquered or overpowered thereby; the planet farthest from the same, has its own counter-revolution least conquered thereby; and the intermediate planets more or less in inverse proportion to their distances from the same, as mathematicians demonstrate.

CH. 11.—We may most reasonably assume the figure of the stars to be spherical. For, since we have shown that it is not their nature to have any motion of their own, and since Nature does nothing either irrational or in vain, it is plain that she has assigned to the immovables that figure which is least fit for motion; which figure is the sphere, as having no organ for motion. Besides, what is true of one is true of all (*ἔτι δ' ὁμοίως μὲν ἅπαντα καὶ ἕν*): now the Moon may be shown to be spherical, first, by the visible manifestations which she affords in her waxings and wanings, next, from astronomical observations of the eclipses of the Sun. Since therefore one among the stars is shown to be spherical, we may presume that the rest will be so likewise.

CH. 12.—I proceed to two other difficulties, which are well calculated to perplex every one. We must try to state what looks most like truth, considering such forwardness not to be of the nature of audacity, but rather to deserve respect, when any one, stimulated by the thirst for philosophy, contents himself with small helps and faint approximations to truth, having to deal with the gravest difficulties.

1. Why is it, that the circles farthest from the outermost circle (or Aplanês) are not always moved by a greater number of motions than those nearer to it? Why are some of the intermediate circles (neither farthest nor nearest) moved by a greater number of motions than any of the others? For it would seem reasonable, when the First Body is moved by one single rotatory current, that the one nearest to it should be moved by two, the next nearest by three, and so on in regular sequence to those which are more distant. But we find that the reverse occurs in fact: Sun and Moon have fewer movements than some of the planets, which are nevertheless farther

from the centre, and nearer to the First Body. In regard to some of the planets, we know this by visual evidence; for we have seen the Moon when at half-moon passing under Mars, who was occulted by the dark part of her body, and emerged on the bright side of it. The like is attested respecting the other planets, by the Egyptians and Babylonians, the most ancient of all observers.

2. Why is it, that in the First Revolution (in the revolution of the First Heaven or First Body) there is included so vast a multitude of stars as to seem innumerable; while in each of the others there is one alone and apart, never two or more fastened in the same current?

Here are two grave difficulties, which it is well to investigate and try to understand, though our means of information are very scanty, and though we stand at so great a distance from the facts. Still, as far as we can make out from such data, these difficulties would not seem to involve any philosophical impossibility or incongruity. Now we are in the habit of considering these celestial bodies as bodies only; and as monads which have indeed regular arrangement, but are totally destitute of soul or vital principle. (When Aristotle here says *we*, he must mean the philosophers whose point of view he is discussing: for the general public certainly did not regard the Sun, Moon, and stars as *ἄψυχα πάμπαν*, but, on the contrary, considered this as blameable heresy, and looked upon them as Gods). We ought, however, to conceive them as partaking of life and action (*δεῖ δ' ὡς μετεχόντων ὑπολαμβάνειν πράξεως καὶ ζωῆς*); and in this point of view the actual state of the case will appear nowise unreasonable (s. 2). For we should naturally expect that to that which is in the best possible condition, such well-being will belong without any agency at all; to that which is next best, through agency single and slight; to such as are farther removed in excellence of condition, through action more multiplied and diversified. Just so in regard to the human body: the best constituted body maintains its good condition without any training at all; there are others which will do the same at the cost of nothing more than a little walking; there are inferior bodies which require, for the same result, wrestling, running, and other motions; while there are even others which cannot by any amount of labour attain a good condition, but are obliged to be satisfied with something short of it (s. 3). Moreover it is difficult to succeed in many things, or to succeed often: you may throw one or two sixes with the dice, but you cannot throw ten thousand; and, farther, when the conditions of the problem become complicated—when one thing is to be done for the sake of another, that other for a third result, and that third for a fourth, &c.—success, which may be tolerably easy when the steps are only few, the more they are multiplied, becomes harder and harder.

Hence we must consider the agency of the stars as analogous to that of plants and animals. For here the agency of man is most multifarious, since he is capable of attaining many varieties of good, and accordingly busies himself about many things and about one thing for the sake of others. The agency of other animals on the other hand is more restricted; that of plants yet more so, being of slight force and only of one special character (s. 4). But that which exists in the best possible condition stands in no need of acting or agency; for it already possesses that for the sake of which action is undertaken. Now action always includes two elements—that for the sake of which and what is for the sake thereof—the end and the means: there is either some one end, which the agent may attain, as in the case of man; or there are many different matters all of which may be used as means towards the best possible condition. Thus one agent possesses and partakes of the best possible condition; another comes near to it with little trouble; a third, with much trouble; a fourth does not even aspire to the end, but is competent only to arrive near to the last of the means. For example, let health be the end: one man is always in health; a second becomes so, by being starved down; a third by that, combined with running exercise; a fourth is obliged to take some additional exercise, in order to qualify himself for running, so that his motions are multiplied; a fifth is incapable of arriving at health, but arrives only at the running and the being thinned down, one of which in this case serves as end. For it would be best for all, if they could attain the supreme end—health; but, if that be impossible, then the next best thing is to get as near to the best as possible (ss. 5-7).

For this reason the Earth is not moved at all, and the matters near the Earth are moved with few motions; since they do not arrive at the extreme best, but only as near as their ability permits to obtain or hit the supremely divine principle; while the First Heaven, on the contrary, obtains or hits it at once, through one single motion; and the bodies intermediate between the First Heaven and those which are last (or nearest to the

Earth), obtain it or arrive at it also, but only through a greater number of motions.

There is the other difficulty also to be considered—that vast multitude of stars are put all together in the one single First Current or Revolution, but each of the other stars (planets) has its own motions singly and apart. The principal reason of this we may fairly suppose to be that it follows as a natural consequence from the vast superiority of the first, in each variety of life and in each beginning, over all posterior to the first. Here the First Current or Revolution, being one and by itself, moves many of the divine bodies, while the others (secondary or counter-currents), numerous as they are, move each only one; for each one of these wandering bodies or planets is carried by many different currents. Thus Nature establishes equalization and a sort of symmetry, by assigning, in the one case, many bodies to one current, and in the other, many currents to one body (ss. 8-10). Beside this principal reason, there is also another. The other currents have each one body only, because motion is given to many bodies by all of them prior to the last which bears the one star. For the last sphere is carried round fastened into many spheres, and each sphere is a body (ss. 11, 12. I do not clearly understand the lines that follow:—*ἐκείνης ἂν οὖν κοινὸν εἴη τὸ ἔργον· αὕτη μὲν γὰρ ἑκάστῃ ἡ ἴδιος φύσει φορά· αὕτη δὲ οἷον προσκεῖται. παντὸς δὲ πεπερασμένου σώματος πρὸς πεπερασμένον ἡ δύναμίς ἐστιν.*).[a]

CH. 13.—Having thus explained, respecting the Stars and Planets which are carried round in circular motion, what is their essence, figure, current, and order of position, we now proceed to speak of the Earth: What is its position? Whether is it at rest or in motion? What is its figure?

Philosophers differ respecting the position of the Earth. Most of those who conceive the entire Kosmos as finite, declare the Earth to be in its centre. But the Italian philosophers, called Pythagoreans, are of an opposite opinion; affirming that Fire is in the centre, and that the Earth, being one of the stars revolving round the centre, makes night and day. They assume moreover another Earth opposite to this (*ἐναντίαν ἄλλην ταύτῃ*)—which other they call *Antichthon*. Herein they do not adjust their theories and look out for causes adapted to the phenomena; but, on the contrary, they distort the phenomena so as to suit their own doctrines and reasonings, and try to constitute themselves auxiliary governors of the Kosmos (*πειρώμενοι συγκοσμεῖν*—s. 1). And, if we are to look for assurance not to the phenomena but to our own reasonings, many others might agree with them, that it is not proper (*μὴ δεῖν*) to assign to the Earth the central place. They think that the most honourable place belongs to the most honourable body, and that Fire is more honourable than Earth; that the two extremes, centre and circumference, are more honourable than the parts intermediate between them. Upon these grounds they consider that Fire and not Earth is at the centre of the Universal Sphere; and they have another reason, peculiar to themselves, for this conclusion: they hold that the centre is the most important place in the universe, and that it ought as such to be the most carefully guarded; wherefore they call it the watch of Zeus (*Διὸς φυλακήν*), and regard it as occupied by Fire (s. 2).

This assumes that what is absolutely (*i.e.*, without subjoining any qualifying adjunct), described as *the centre*, is at once centre of the magnitude, centre of the object, and centre of nature. But we ought rather to follow the analogy of animals, where the same point is not the centre of the animal and the centre of the body: the case is the same in the entire Kosmos. Hence the Pythagoreans need not feel any anxiety about the Universe (*οὐθὲν αὐτοὺς δεῖ θορυβεῖσθαι περὶ τὸ πᾶν*), nor introduce a guard at the centre. They ought rather to enquire where and of what character the middle point is; for that middle point is the true beginning and the honourable. The middle of the place occupied is rather like an end than like a beginning; for that which is limited is the middle, that which limits is the boundary: now that which comprehends and is boundary, is more honourable than that which is bounded; the former is the Essence of the entire compound, the latter is only its Matter (s. 3).

As about the place of the Earth, so also about its motion or rest, philosophers differ. The Pythagoreans and those who do not even place it at the centre, consider it to revolve in a circle, and they consider the Antichthon to revolve in like manner. Some even think it possible that there may be many other bodies carried round the centre in like manner, though invisible to us, by reason of the obstructing body of the Earth. Hence (they say) the eclipses of the Moon are more frequent than those

[a] [See Prantl's note on this difficult passage in his German translation of the De Cœlo, p. 309 (Leipzig, 1857).]

of the Sun; since not only the Earth, but also each of these unseen bodies, causes the Moon to be eclipsed. For, the Earth not being a point, we on the circumference thereof, even assuming it to occupy the centre, are distant from the centre by the entire hemisphere of the Earth; yet we do not find out that we are not in the centre, and astronomical appearances present themselves to us just as if we were so. Thus it happens (according to these philosophers), the Earth not being in the centre at all: the appearances presented to us are just the same as if we were at the centre.

Again, there are some who (like Plato in Timæus) affirm that the Earth, though situated in the centre, is packed and revolves round the axis stretched across the universe (s. 4).

About the figure of the Earth, there is no less difference of opinion. Some say that it is spherical; others, that it is flat and in shape like a tambourine (*τυμπανοειδής*). These last adduce as proof, that the Sun, at rising and setting, exhibits a rectilinear section or eclipse of his disk and not a circular one, when partially concealed by the Earth, and becoming invisible under the horizon or visible above the horizon. They do not take proper account of the vast distance of the Sun and the magnitude of his circumference. The segment of a long circle appears from a distance like a straight line. These philosophers further add, that the flat tambourine-like shape must be inferred of necessity from the fact that the Earth remains stationary (s. 5).

Upon this disputed question, a feeling of perplexity comes unavoidably upon every one. It would argue a very irrational mind not to wonder how a small piece of the Earth, if suspended in the air, is carried downward and will not stop of itself, and the larger piece is carried downward more quickly than the smaller; while nevertheless the entire Earth, if suspended in like manner, would not be so carried. In spite of its great weight, it remains stationary (s. 6). But the solutions of this problem which some suggest are more strange and full of perplexity, and it is surprising that they have not been so considered. The Kolophonian Xenophanes affirmed that the lower depths of the Earth were rooted downwards to infinity, in order to escape the troublesome obligation of looking for a reason why it remained stationary. Others say, that the Earth rests upon water, floating thereupon like wood: this is an ancient doctrine promulgated by Thales; as if there were not as much perplexity about the water which supports the Earth, as there is about the Earth itself. For it is not the nature of water to remain suspended, but always to rest upon something (s. 7). Moreover, air is lighter than water, and water lighter than earth; how then can these men think that the substance naturally lighter can lie below the substance naturally heavier? Besides, if it were the nature of the whole Earth to remain resting on water, it must be the nature of each part of the Earth to do the same; but this does not happen: each part of the earth is carried down to the bottom, and the greater part more quickly than the less (s. 8).

All these philosophers carry their researches to a certain point, but not to the bottom of the problem. It is indeed a habit with all of us to conduct our enquiries not with reference to the problem itself, but with reference to our special opponents. If we have no opponent but are conducting our investigations alone, we pursue them as far as that point where we can make no farther objections to ourselves. Whoever therefore intends to investigate completely must take care to make objections to himself upon all the points of objection which really belong to the subject; and this he can only do after having thoroughly surveyed all the differences of opinion and doctrine (s. 9).

The reason why the Earth remains at rest, Anaximenes, Anaxagoras, and Demokritus, declare to be its breadth or flatness (*τὸ πλάτος*): it does not (they say) divide the air beneath, but covers over the air like a lid (*οὐ γὰρ τέμνειν, ἀλλ' ἐπιπωματίζειν τὸν ἀέρα τὸν κάτωθεν*); as we see that flat and spreading bodies usually do, being difficult to be moved and making strong resistance even against the winds. The Earth does the same, through its flatness, against the air beneath, which remains at rest there (in the opinion of these philosophers) because it finds no sufficient place into which to travel, like water in a *klepsydra*: they also produce many evidences to show that air thus imprisoned, while remaining stationary, can support a heavy weight (s. 10).

Now, in the first place, these men affirm that, unless the shape of the Earth were flat, it would not remain at rest. Yet on their own showing it is not alone the flat shape of the earth which causes it to remain at rest, but rather its magnitude. For the air beneath remains *in situ* by reason of its vast mass, finding no means of escape through the narrow passage; and the mass of the air is thus vast, because it is imprisoned inside by the great magnitude of the Earth;

which effect will be produced in the same manner, even though the Earth be spherical, provided it be of its present magnitude. Moreover, philosophers who hold this opinion about the motion of the Earth, think only of its motion as a whole, and take no account of its parts. For they ought to define at the first step whether bodies have or have not one special mode of motion by nature; and, if none by nature, then whether they have any mode of motion violent or contra-natural. I have already determined this point as well as my powers admitted, and shall therefore assume the results as settled. If there be no special motion natural to bodies, neither will there be any which is contra-natural or violent; and, if there be none either natural or violent, no body will be moved at all. I have already shown that this is a necessary consequence; and, farther, that (upon that supposition) there can be no body even at rest; for rest, like motion, is either natural or contra-natural; and, if there be any special mode of motion which is natural, neither contra-natural motion, nor contra-natural rest, can stand alone (ss. 11-13).

Let us then assume (reasoning on the hypothesis of these philosophers) that the Earth now remains in its present place contrary to nature, and that it was carried into aggregation at the centre by the revolution of the Kosmos (also contrary to nature—*καὶ συνῆλθεν ἐπὶ τὸ μέσον φερομένη διὰ τὴν δίνησιν*—s. 14). For all those who recognize a generation of the Kosmos assign this revolution as the cause which determined the aggregation of the Earth at the centre, upon the analogy of particles carried round in liquids or in air, where the larger and heavier particles are always carried to the centre of the revolution. They profess thus to know the cause which determined the Earth to *come to* the centre; but what they seek to find out is the cause which determines it to remain there, and upon that they differ: some saying, as has been stated just now, that its breadth and magnitude is the cause; others, with Empedokles, ascribing the fact to the revolution of the Heaven, the extreme velocity of which checks the fall of the Earth downward, just as water in a cup may be whirled rapidly round without falling to the ground. But suppose absence of these two causes: in which direction will the Earth be naturally carried? Not to the centre; for (upon the doctrine which we are now criticising) its motion to the centre, and its remaining at the centre, are both of them contra-natural; but some special mode of motion, natural to the Earth, there must necessarily be. Is this upward, or downward, or in what other direction? If there be no greater tendency downward than upward, and if the air above does not hinder the Earth from tending upward, neither will the air beneath hinder it from tending downwards: the same causes produce the same effects, operating on the same matter (ss. 14, 15).

A farther argument becomes applicable, when we are reasoning against Empedokles. When the four elements were first separated out of their confused huddle by the influence of Contention, what was the cause for the Earth to remain still and *in situ*? Empedokles cannot claim to introduce then the agency of the cosmical revolution. Moreover, it is strange that he should not have reflected that in the first instance the particles and fragments of the Earth were carried to the centre. But what is the cause now that every thing having weight is carried towards the Earth? It cannot be the revolution of the Heaven which brings these things nearer to us (s. 16).

Again, Fire is carried upward. What is the cause of this? The revolution of the Heaven cannot cause it. But, if it be the nature of fire to be carried in one certain direction, it must be equally the nature of Earth to be carried in one certain direction. Light and heavy, also, are not discriminated by the heavenly revolution. There are matters originally heavy, and matters originally light: the former are carried to the centre, the latter to the circumference, each by its own special motion. Even prior to the heavenly revolution there existed things intrinsically light and intrinsically heavy: which are discriminated by certain attributes—a certain natural mode of motion and a certain place. In infinite space, there can be no upward and downward; and it is by this (local distinction) that light and heavy are discriminated (ss. 17, 18).

While most philosophers insist upon the causes just noticed why the Earth remains stationary where it is, there are others, like Anaximander, among the ancients, who say that it remains so because of its likeness or equality (*διὰ τὴν ὁμοιότητα*—equal tendency in all directions). That which is situated in the centre (they say) and which has like relation to the extreme parts (*i.e.*, like to *all* the extreme parts) ought not to be carried any more upward or downward or sideways; and it cannot be moved in opposite directions at once; so that it remains stationary by necessity (s. 19).

This doctrine is ingenious, but not

true. For the property affirmed is noway peculiar to the Earth: the affirmation is, that every thing which is placed at the centre must of necessity remain there; so that Fire also would remain there at rest, as well as Earth. But this necessity must be denied. For it is shown by observation that the Earth not only remains at the centre, but is carried to the centre; since each part of it is carried thither, and, whithersoever the parts are carried, the whole is carried necessarily to the same point. The peculiar property of the earth therefore is, not (as this hypothesis declares) to have like relation to all the extreme parts—for that is common to all the elements—but to be carried towards the centre (ss. 20, 21).

Moreover, it is absurd to investigate why the Earth remains at the centre, and not to investigate equally why Fire remains at the extremity. For, if you explain this last by saying that Fire has its natural place at the extremity, the Earth must have its natural place somewhere else. If the centre be not the natural place of the Earth, and if the Earth remains there through like tendency in all directions, like the hair in equal tension or the man both hungry and thirsty between food and drink, you must equally assign the reason why Fire remains at the extremity. It is singular too that you should try to explain only the *remaining at rest* (*μονῆς*) of the Earth, and not also seek to explain the natural current (*φορά*)—why Earth is carried downward, and Fire upward, when there is no opposing force (s. 22).

Nor can it be admitted that the doctrine is true. Thus much indeed is true by accident—that every thing which has no greater obligation to be moved in this direction than in that, must necessarily remain at the centre. But this is true only so long as it remains a compact whole; for, according to the theory which we are discussing, it will not remain stationary, but will be moved: not indeed as a whole, but dispersed into parts (s. 23: *ἀλλὰ μὴν οὐδὲ ἀληθές ἐστι τὸ λεγόμενον. κατὰ συμβεβηκὸς μέντοι τοῦτό γε ἀληθές, ὡς ἀναγκαῖον μένειν ἐπὶ τοῦ μέσου πᾶν, ᾧ μηθὲν μᾶλλον δεῦρο ἢ δεῦρο κινεῖσθαι προσήκει. ἀλλὰ διά γε τοῦτον τὸν λόγον οὐ μενεῖ ἀλλὰ κινηθήσεται· οὐ μέντοι ὅλον, ἀλλὰ διεσπασμένον.*—I understand *κατὰ συμβεβηκός* to mean, subject to the condition of its remaining a compact whole). For the same reasoning would apply to Fire as well as to Earth: it would prove that Fire, if placed at the centre, will remain there just as much as Earth, because Fire will have like relation to each point of the extreme periphery. Yet nevertheless it will (not remain at the centre, but will) be carried away, if not impeded, as we observe that it is carried in fact, to the periphery; only not all to one and the same point of the periphery, but corresponding portions of the Fire to corresponding portions of the periphery: I mean, that the fourth part (*e.g.*) of the Fire will be carried to the fourth part of the periphery; for a point is no real part of bodies (*οὐθὲν γὰρ στιγμὴ τῶν σωμάτων ἐστίν*). This is the only necessary consequence flowing from the principle of likeness of relation. As, if supposed to be put all together at the centre, it would contract from a larger area into a smaller, so, when carried away from the centre to the different parts of the periphery, it would become rarer and would expand from a smaller area into a larger. In like manner the Earth also would be moved away from the centre, if you reason upon this principle of likeness of relation, and if the centre were not the place belonging to it by nature (s. 24).

CH. 14.—Having thus reported the suppositions of others respecting the figure, place, rest and motion, of the Earth, I shall now deliver my own opinion, first, whether it is in motion or at rest; for some philosophers, as I have said, regard it as one of the stars (and therefore not in the centre, but moving round the centre—the Pythagorean theory); others (as Plato), though they place it in the centre, consider it to be packed and moved round the middle of the axis of the Kosmos (*οἱ δὲ ἐπὶ τοῦ μέσου θέντες, εἰλεῖσθαι καὶ κινεῖσθαί φασι περὶ τὸν μέσον πόλον*).

That neither of these hypotheses is possible, we shall perceive if we take as our point of departure—That, if the Earth be carried round, whether in the centre or apart from the centre, such motion must necessarily be violent or contra-natural. Such motion does not belong naturally to the Earth itself; for, if such were the fact, it would belong equally to each portion of the Earth, whereas we see that all these portions are carried in a straight line to the centre. Being thus violent or contra-natural, it cannot possibly be eternal. But the order of the Kosmos *is* eternal. Besides, all the bodies which are carried round in a circular revolution (all except the First or Outermost Sphere—the Aplanês) appear to observation as lagging behind and as being moved in more than one current. The like ought to happen with the Earth, if moved round, whether on the centre or apart from the centre: it ought to be moved in two currents; and,

as a consequence thereof, there ought to be side-motions and back-turnings of the stars fastened in their sphere. But we see by observation that this does not happen; and that the same stars always rise and set at the same places of the Earth (s. 1).

Farthermore, the natural current both of the entire Earth and of each of its parts is towards the middle of the universe: this is the reason why it is at the centre, even though it happens to be actually there at present (διὰ τοῦτο γάρ, κἂν εἰ τυγχάνει κειμένη νῦν ἐπὶ τοῦ κέντρου—he means that though actually there, it remains there not through any force of inertia or other cause, but because it has a natural current towards the centre). You might start a doubt, indeed, since the centre of the Universe coincides with the centre of the Earth, to which of the two it is that the current of heavy bodies naturally tends: whether they tend thereto because it is the centre of the Universe, or because it is the centre of the Earth. We must however necessarily suppose the former; since Fire and light bodies, whose current is the contrary of the current of heavy bodies, are carried to the extreme periphery of the Universe, or of that place which comprehends and surrounds the centre of the Universe (ss. 2, 3). But it happens (συμβέβηκε: it is an accompanying fact) that the same point is centre of the Universe and centre of the Earth; accordingly heavy bodies are carried by accident (κατὰ συμβεβηκός—by virtue of this accompanying fact) to the centre of the Earth; and the proof that they are carried to this same point is, that their lines of direction are not parallel but according to similar angles (s. 4). That the Earth therefore is at the centre, and that it is at rest, we may see by the foregoing reasons, as well as by the fact, that stones thrown upwards to ever so great a height, are carried back in the same line of direction to the same point (s. 5).

We may see farther the cause why the Earth remains at rest. For, if its natural current be from all directions towards the centre, as observation shows, and that of Fire from the centre to the periphery,—no portion of it can possibly be carried away from the centre, except by violence. For to one body belongs one current of motion, and to a simple body a simple current—not the two opposite currents; and the current *from* the centre is opposite to the current *to* the centre. If, therefore, it be impossible for any portion of the Earth to be carried in a direction away from the centre, it is yet more impossible for the whole Earth to be so; for the natural current of each part is the same as that of the whole. Accordingly, since the Earth cannot be moved except by a superior force or violence, it must necessarily remain stationary at the centre (s. 6). The same conclusion is confirmed by what we learn from geometers respecting astronomy; for all the phenomena of the Heavens—the changes in figure, order, and arrangement of the stars—take place as if the Earth were in the centre (s. 7).

The figure of the Earth is necessarily spherical. For each of its parts has gravity, until it reaches the centre; and the lesser part, pushed forward by the greater, cannot escape laterally, but must become more and more squeezed together, one part giving place to the other, until the centre itself is reached. We must conceive what is here affirmed as occurring in a manner like what some of the ancient physical philosophers tell us, except that *they* ascribe the downward current to an extraneous force; whereas we think it better to state the truth, and to say that it occurs because *by nature* all heavy bodies are carried towards the centre. Since, therefore, the preliminary Chaos or hotchpotch existed in power (or with its inherent powers existing though not exercised), the elements (those which had gravity), were carried from all sides equally towards the centre (ἐν δυνάμει οὖν ὄντος τοῦ μίγματος, τὰ διακρινόμενα ἐφέρετο ὁμοίως πάντοθεν πρὸς τὸ μέσον—this is an allusion to the doctrine of Anaxagoras); indeed, whether brought together at the centre equally from all the periphery or in any other manner, the result will be the same. If we suppose particles to be brought together at the centre equally from all sides, it is plain that the mass so formed will be regular and spherical; and, even if not equally from all sides, this will make no difference in the reasoning; for, since all portions of the mass have weight or tend to the centre, the larger portions will necessarily push the lesser before them as far as the centre (ss. 8, 9).

A difficulty here presents itself, which may be solved upon the same principles. The Earth being spherical, and at the centre, suppose that a vast additional weight were applied to either of its hemispheres. In that case, the centre of the Universe, and the centre of the Earth, would cease to coincide: either, therefore, the Earth will not remain at the centre; or, if it would still remain at rest, while not occupying the centre, it is in its nature to be moved even now (s. 10: ὥστε ἢ οὐ μενεῖ ἐπὶ τοῦ μέσου, ἢ εἴπερ ἠρεμήσει γε καὶ μὴ τὸ μέσον ἔχουσα ᾖ, πέφυκε κινεῖσθαι καὶ νῦν—*i.e.*, if the Earth *can* be at rest when not at the

centre, we must infer that the centre is not its natural place, and therefore that its nature will be to be moved from the centre towards that natural place wherever situated).

Such is a statement of the difficulty; but we shall see that it may be cleared up with a little attention. We must distinguish what we mean when we affirm that every particle having weight is carried towards the centre. We clearly do not mean that it will be so carried until the particles farthest from the centre shall touch the centre. We mean that the greater mass must press with preponderating force (*δεῖ κρατεῖν τὸ πλεῖον ἕως ἂν λάβῃ τῷ αὑτοῦ μέσῳ τὸ μέσον*) until its centre grasps the centre of the universe; up to this point its gravity will last; and this is equally true about any clod of earth as about the whole earth: large or small size makes no difference. Whether the whole Earth were carried in a mass from any given position, or whether it were carried in separate particles, in either case it would be carried onward until it embraced the centre equally on all sides; the smaller parts being equalized to the greater in gravitating tendency because they are pushed forward by the greater (*ἀνισαζομένων τῶν ἐλαττόνων ὑπὸ τῶν μειζόνων τῇ προώσει*—s. 11). If, therefore, the Earth was ever generated, it must have been generated in this manner, and must thus acquire a spherical figure; and, even if it be ungenerable and stationary from everlasting, we must conceive its figure to be that which it would have acquired, if it had been generable and generated from the first (*εἴτε ἀγέννητος ἀεὶ μένουσα, τὸν αὐτὸν τρόπον ἔχειν, ὅνπερ κἂν εἰ γιγνομένη τὸ πρῶτον ἐγένετο*). That it must be spherical, we see not only from this reasoning, but also because all heavy bodies are carried towards it, not in parallel lines but, in equal angles. This is what naturally happens with what is either actually spherical, or by nature spherical. Now we ought to call every thing such as it by nature wishes to become and to be: we ought not to call it such as it is by force and contrary to nature (s. 12).

The same conclusion is established by the sensible facts within our observation. If the Earth had been of any other than spherical figure, the eclipses of the Moon would not have projected on the Sun the outlines which we now see. The moon in her configurations throughout the month takes on every variety of outline—rectilinear, double convex, and hollow. But in her eclipses the distinguishing line is always convex. Now this must necessarily be occasioned by the circumference of the Earth being spherical, since the eclipses of the Moon arise from the interposition of the Earth (s. 13).

Farthermore, we see from the visible phenomena of the stars not only that the Earth is spherical, but also that its magnitude is not great. For, when we change our position a little as observers, either to the north or to the south, we find the celestial horizon to be manifestly different. The stars at the zenith are greatly changed, and the same stars do not appear: some stars are visible in Egypt and Cyprus, but become invisible when we proceed farther north; and those which are constantly visible in the northern regions, are found to be not constantly visible, but to set, when the observer is in Egypt or Cyprus. The bulk of the Earth must therefore be small, when a small change of position is made so soon manifest to us (s. 14). Hence those who hold that the regions near the pillars of Hêrakles join on with India and that the ocean eastward and westward is one and the same, must not be supposed to talk extravagantly (*μὴ λίαν ὑπολαμβάνειν ἄπιστα δοκεῖν*): they infer this from the presence of elephants alike at both extremities. Geometers who try to calculate the magnitude of the Earth, affirm that its circumference is 400,000 stadia.

It follows necessarily from all these reasonings, that the body of the Earth is not only of spherical form, but also not large compared with the magnitude of the other Stars (ss. 15, 16).

[The remaining two books of the treatise known by the title 'De Cœlo,' while connected with the foregoing, are still more closely connected with the two Books composing the treatise entitled 'De Generatione et Corruptione.' The discussion carried on throughout the two treatises is in truth one; but, if anywhere broken, it is at the end of Book II. De Cœlo, as above. From this point Aristotle proceeds to consider (in four Books) the particular phenomena presented by natural bodies—phenomena of Generation and Destruction (in the widest sense of these words)—dependent on the opposition of the upward and downward motions; bodies, thus light or heavy, being thence seen to be ultimately reducible to four elements variously combined. Treating of the Kosmos in its larger aspects, the first two Books of De Cœlo, here abstracted, are obviously those that alone correspond strictly to the name of the treatise.]

V.

EPIKURUS.

OUR information from Epikurean writers respecting the doctrines of their sect is much less copious than that which we possess from Stoic writers in regard to Stoic opinions. We have no Epikurean writer on philosophy except Lucretius; whereas respecting the Stoical creed under the Roman Empire, the important writings of Seneca, Epictetus, and Marcus Antoninus, afford most valuable evidence.

The standard of Virtue and Vice is referred by Epikurus to Pleasure and Pain. Pain is the only evil, Pleasure is the only good. Virtue is no end in itself, to be sought; vice is no end in itself, to be avoided. The motive for cultivating virtue and banishing vice arises from the consequences of each, as the means of multiplying pleasures and averting or lessening pains. But to the attainment of this purpose, the complete supremacy of Reason is indispensable; in order that we may take a right comparative measure of the varieties of pleasure and pain, and pursue the course that promises the least amount of suffering.

This theory (taken in its most general sense, and apart from differences in the estimation of particular pleasures and pains), had been proclaimed long before the time of Epikurus. It is one of the various theories of Plato; for in his dialogue called Protagoras (though in other dialogues he reasons differently) we find it explicitly set forth and elaborately vindicated by his principal spokesman, Sokrates, against the Sophist Protagoras. It was also held by Aristippus (companion of Sokrates along with Plato) and by his followers after him, called the Kyrenaics. Lastly, it was maintained by Eudoxus, one of the most estimable philosophers contemporary with Aristotle. Epikurus was thus in no way the originator of the theory; but he had his own way of conceiving it, his own body of doctrine physical, cosmological, and theological, with which it was implicated, and his own comparative valuation of pleasures and pains.

Bodily feeling, in the Epikurean psychology, is prior in order of time to the mental element; the former is primordial, while the latter is derived from it by repeated processes of memory and association. But, though such is the order of sequence and generation, yet when we compare the two as constituents of happiness to the formed man, the mental element much outweighs the bodily, both as pain and as pleasure. Bodily pain or pleasure exists only in the present; when not felt, it is nothing. But mental feelings involve memory and hope, embrace the past as well as the future, endure for a long time, and may be recalled or put out of sight, to a great degree, at our discretion.

This last point is one of the most remarkable features of the Epikurean mental discipline. Epikurus deprecated the general habit of mankind in always hankering after some new satisfaction to come; always discontenttd with the present, and oblivious of past comforts as if they had never been. These past comforts ought to be treasured up by memory and reflection, so that they might become as it were matter for rumination, and might serve, in trying moments, even to counterbalance extreme physical suffering. The health of Epikurus himself was very bad during the closing years of his life. There remains a fragment of his last letter, to an intimate friend and companion, Idomeneus:—"I write this to you on the last day of my life, which, in spite of the severest internal bodily pains, is still a happy day, because I set against them in the balance all the mental pleasure felt in the recollection of my past conversations with you. Take care of the children left by Metrodorus, in a manner worthy of your demeanour from boyhood towards me and towards philosophy." Bodily pain might thus be alleviated, when it occurred; it might be greatly lessened in occurrence, by prudent and moderate habits; lastly, even at the worst, if violent, it never lasted long; if not violent, it might be patiently borne, and was at any rate terminated, or terminable at pleasure, by death.

In the view of Epikurus, the chief miseries of life arose, not from bodily pains, but partly from delusions of hope and exaggerated aspirations for wealth, honours, power, &c., in all which the objects appeared most seductive from a

distance, inciting man to lawless violence and treachery, while in the reality they were always disappointments and generally something worse; partly, and still more, from the delusions of fear. Of this last sort, were the two greatest torments of human existence—fear of Death and of eternal suffering after death, as announced by prophets and poets, and fear of the Gods. Epikurus, who did not believe in the continued existence of the soul separate from the body, declared that there could never be any rational ground for fearing death, since it was simply a permanent extinction of consciousness. Death was nothing to us (he said): when death comes, *we* are no more, either to suffer or to enjoy. Yet it was the groundless fear of this nothing that poisoned all the tranquillity of life, and held men imprisoned even when existence was a torment. Whoever had surmounted that fear was armed at once against cruel tyranny and against all the gravest misfortunes. Next, the fear of the gods was not less delusive, and hardly less tormenting, than the fear of death. It was a capital error (Epikurus declared) to suppose that the gods employed themselves as agents in working or superintending the march of the Kosmos; or in conferring favour on some men, and administering chastisement to others. The vulgar religious tales, which represented them in this character, were untrue and insulting as regards the gods themselves, and pregnant with perversion and misery as regards the hopes and fears of mankind. Epikurus believed sincerely in the gods; reverenced them as beings at once perfectly happy, immortal, and unchangeable; and took delight in the public religious festivals and ceremonies. But it was inconsistent with these attributes, and repulsive to his feelings of reverence, to conceive them as agents. The idea of agency is derived from human experience: we, as agents, act with a view to supply some want, to fulfil some obligation, to acquire some pleasure, to accomplish some object desired but not yet attained—in short, to fill up one or other of the many gaps in our imperfect happiness: the gods already *have* all that agents strive to get, and more than agents ever do get; their condition is one not of agency, but of tranquil, self-sustaining, fruition. Accordingly, Epikurus thought (as Aristotle[a] had thought before him) that the perfect, eternal, and imperturbable well-being and felicity of the gods excluded the supposition of their being agents. He looked upon them as types of that unmolested safety and unalloyed satisfaction which was what he understood by pleasure or happiness, as objects of reverential envy, whose sympathy he was likely to obtain by assimilating his own temper and condition to theirs as far as human circumstances allowed.

These theological views were placed by Epikurus in the foreground of his ethical philosophy, as the only means of dispelling the fears of those gods that the current fables instilled into every one, and that did so much to destroy human comfort and security. He proclaimed that beings in immortal felicity neither suffered vexation in themselves nor caused vexation to others; neither showed anger nor favour to particular persons. The doctrine that they were the working managers in the affairs of the Kosmos, celestial and terrestrial, human and extra-human, he not only repudiated as incompatible with their attributes, but declared to be impious, considering the disorder, sufferings, and violence, everywhere visible. He disallowed all prophecy, divination, and oracular inspiration, by which the public around him believed that the gods were perpetually communicating special revelations to individuals, and for which Sokrates had felt so peculiarly thankful.

It is remarkable that Stoics and Epikureans, in spite of their marked opposition in dogma or theory, agreed so far in practical results, that both declared these two modes of uneasiness (fear of the gods and fear of death) to be the great torments of human existence, and both strove to remove or counterbalance them.

So far the teaching of Epikurus appears confined to the separate happiness of each individual, as dependent upon his own prudence, sobriety, and correct views of Nature. But this is not the whole of the Epikurean Ethics. The system also considered each man as in companionship with others: the precepts were shaped accordingly, first as to Justice, next as to Friendship. In both these, the foundation whereon Epikurus built was Reciprocity—not pure sacrifice to others, but partnership with others, beneficial to all. He kept the ideas of self and of others inseparably knit together in one complex

[a] Aristot. De Cœlo, II. xii. p. 292, a. 22-b. 7: ἔοικε γὰρ τῷ μὲν ἄριστα ἔχοντι ὑπάρχειν τὸ εὖ ἄνευ πράξεως, τῷ δ' ἐγγύτατα διὰ ὀλίγης καὶ μιᾶς, τοῖς δὲ πορρωτάτω διὰ πλειόνων,—τῷ δ' ὡς ἄριστα ἔχοντι οὐδὲν δεῖ πράξεως· ἔστι γὰρ αὐτὸ τὸ οὗ ἕνεκα, ἡ δὲ πρᾶξις ἀεί ἐστιν ἐν δυσίν, ὅταν καὶ οὗ ἕνεκα ᾖ καὶ τὸ τούτου ἕνεκα. &c. Ibid. iii. p. 286, a. 9: θεοῦ δ' ἐνέργεια ἀθανασία· τοῦτο δ' ἐστὶ ζωὴ ἀΐδιος, &c.

In the Ethica, Aristotle assigns theorizing contemplation to the gods, as the only process worthy of their exalted dignity and supreme felicity.

association: he did not expel or degrade either, in order to give exclusive ascendancy to the other. The dictate of Natural Justice was, that no man should hurt another: each was bound to abstain from doing harm to others; each, on this condition, was entitled to count on security and relief from the fear that others would do harm to him. Such double aspect, or reciprocity, was essential to social companionship: those that could not, or would not, accept this covenant, were unfit for society. If a man does not behave justly towards others, he cannot expect that they will behave justly towards him; to live a life of injustice, and expect that others will not find it out, is idle. The unjust man cannot enjoy a moment of security. Epikurus laid it down explicitly, that just and righteous dealing was the indispensable condition to every one's comfort, and was the best means of attaining it.

The reciprocity of Justice was valid towards all the world; the reciprocity of Friendship went much farther: it involved indefinite and active beneficence, but could reach only to a select few. Epikurus insisted emphatically on the value of friendship, as a means of happiness to both the persons so united. He declared that a good friend was another self, and that friends ought to be prepared, in case of need, to die for each other. Yet he declined to recommend an established community of goods among the members of his fraternity, as prevailed in the Pythagorean brotherhood; for such an institution (he said) implied mistrust. He recommended efforts to please and to serve, and a forwardness to give, for the purpose of gaining and benefiting a friend, and he even declared that there was more pleasure in conferring favours than in receiving them; but he was no less strenuous in inculcating an intelligent gratitude on the receiver. No one except a wise man (he said) knew how to return a favour properly.[a]

These exhortations to active friendship were not unfruitful. We know, even by the admission of witnesses adverse to the Epikurean doctrines, that the harmony among the members of the sect, with common veneration for the founder, was more marked and more enduring than that exhibited by any of the other philosophical sects. Epikurus himself was a man of amiable personal qualities: his testament, still remaining, shows an affectionate regard both for his surviving friends, and for the permanent attachment of each to the others as well as of all to the school. Diogenes Laertius tells us—nearly 200 years after Christ, and 450 years after the death of Epikurus—that the Epikurean sect still continued its numbers and dignity, having outlasted its contemporaries and rivals. The harmony among the Epikureans may be explained, not merely from the temper of the master, but partly from the doctrines and plan of life that he recommended. Ambition and love of power were discouraged; rivalry among the members for success, either political or rhetorical, was at any rate a rare exception; all were taught to confine themselves to that privacy of life and love of philosophical communion which alike required and nourished the mutual sympathies of the brotherhood. In regard to politics, Epikurus advised quiet submission to established authority, without active meddling beyond what necessity required.

Virtue and happiness, in the theory of Epikurus, were inseparable. A man could not be happy until he had surmounted the fear of death and the fear of gods instilled by the current fables, which disturbed all tranquillity of mind; until he had banished those factitious desires that pushed him into contention for wealth, power, or celebrity; nor unless he behaved with justice to all, and with active devoted friendship towards a few. Such a mental condition, which he thought it was in every man's power to acquire by appropriate teaching and companionship, constituted virtue; and was the sure as well as the only precursor of genuine happiness. A mind thus undisturbed and purified was sufficient to itself. The mere satisfaction of the wants of life, and the conversation of friends, became then felt pleasures: if more could be had without preponderant mischief, so much the better; but Nature, disburthened of her corruptions and prejudices, required no more to be happy. This at least was as much as the conditions of humanity admitted: a tranquil, undisturbed, innocuous, non-competitive fruition, which approached most nearly to the perfect happiness of the Gods.

When we read the explanations given by Epikurus and Lucretius of what the Epikurean theory really was, and compare them with the numerous attacks upon it made by opponents, we cannot but remark that the title and formula of the theory was ill-chosen, and really a misnomer. What Epikurus meant by Pleasure was not what most people meant by it, but something very different—a tranquil and comfortable state of mind and body; much the same as what Demokritus had expressed before him by the phrase εὐθυμία. This last phrase would have expressed what Epikurus

[a] Seneca, Epist. p. 81.

aimed at, neither more nor less. It would at least have preserved his theory from much misplaced sarcasm and aggressive rhetoric.

The Physics of Epikurus was borrowed in the main from the atomic theory of Demokritus, but modified by him in a manner subservient and contributory to his ethical scheme. To that scheme it was essential that those celestial, atmospheric, or terrestrial phenomena which the public around him ascribed to agency and purposes of the gods, should be understood as being produced by physical causes. An eclipse, an earthquake, a storm, a shipwreck, unusual rain or drought, a good or a bad harvest—and not merely these, but many other occurences far smaller and more unimportant, as we may see by the eighteenth chapter of the 'Characters' of Theophrastus—were then regarded as visitations of the gods, requiring to be interpreted by recognized prophets, and to be appeased by ceremonial expiations. When once a man became convinced that all these phenomena proceeded from physical agencies, a host of terrors and anxieties would disappear from the mind; and this Epikurus asserted to be the beneficent effect and real recommendation of physical philosophy. He took little or no thought for scientific curiosity as a motive *per se*, which both Demokritus and Aristotle put so much in the foreground.

He composed a treatise called 'Kanonicon' (now lost), which seems to have been a sort of Logic of Physics—a summary of the principles of evidence. In his system, Psychology was to a great extent a branch—though a peculiar and distinct branch—of Physics, since the soul was regarded as a subtle but energetic material compound (air, vapour, heat, and another nameless ingredient), with its best parts concentrated in the chest, yet pervading and sustaining the whole body—still, however, depending for its support on the body, and incapable of separate or disembodied continuance.

Epikurus recognized, as the primordial basis of the universe, Atoms, Vacuum, and Motion. The atoms were material solid *minima*, each too small to be apprehended separately by sense; they had figure, magnitude, and gravity, but no other qualities. They were infinite in number, and ever moving in an infinite vacuum. Their motions brought them into various coalitions and compounds, resulting in the perceptible bodies of nature; each of which in its combined state acquired new, specific, different qualities. In regard to the primordial movements of the atoms, out of which these endowed compounds grew, Epikurus differed from Demokritus who supposed the atoms originally to move with an indefinite variety of directions and velocities, rotatory as well as rectilineal; whereas Epikurus maintained that the only original movement common to all atoms was one and the same—in the direction of gravity straight down, and all with equal velocity in the infinite void. But it occurred to him that, upon this hypothesis only, there could never occur any collisions or combinations of the atoms—nothing but continued and unchangeable parallel lines. Accordingly he modified it by saying that the line of descent was not strictly rectilinear, but that each atom deflected a little from the straight line, each in its own direction and degree; so that it became possible to assume collisions, resiliences, adhesions, combinations, among them, as it had been possible under the variety of original movements ascribed to them by Demokritus. The opponents of Epikurus derided this auxiliary hypothesis, affirming that he invented the individual deflection of each atom without assigning any cause, and only because he was perplexed by the mystery of man's free-will. But Epikurus was not more open to attack on this ground than other physical philosophers. Most of them (except perhaps the most consistent of the Stoic fatalists) believed that some among the phenomena of the universe occurred in regular and predictable sequence, while others were essentially irregular and unpredictable: each philosopher devised his hypothesis, and recognized some fundamental principle, to explain the latter class of phenomena as well as the former; thus, Plato admitted an invincible erratic necessity, Aristotle introduced Chance and Spontaneity, Demokritus multiplied indefinitely the varieties of atomic movements. The hypothetical deflection alleged by Epikurus was his way, not more unwarranted than the others, of providing a fundamental principle for the unpredictable phenomena of the universe. Among these are the volitional manifestations of men and animals; but there are many others besides, and there is no ground for believing that what is called the mystery of Free-Will (*i. e.*, the question whether volition is governed by motives, acting upon a given state of the mind and body) was at all peculiarly present to his mind. Whatever theory may be adopted on this point, it is certain that the movements of an individual man or animal are not exclusively determined by the general law of gravitation, or by another cause extrinsic to himself; but

to a great degree by his own separate volition, which is often imperfectly knowable beforehand and therefore not predictable. For these and many other phenomena, Epikurus provided a fundamental principle in his supplementary hypothesis of atomic deflection; and indeed not for these only, but also for the questions of opponents, how there could ever be any coalition between the atoms, if all followed only one single law of movement—rectilineal descent with equal velocity. Epikurus rejected the inexorable and all-comprehensive fatalism contained in the theories of some Stoics, though seemingly not construed in its full application even by them. He admitted a limited range of empire to Chance, or phenomena essentially irregular. But he maintained that the will, far from being among the phenomena essentially irregular, is under the influence of motives; for no man can insist more strenuously than he does (see the letter to Menœkeus) on the complete power of philosophy—if the student could be made to feel its necessity and desire the attainment of it, so as to meditate and engrain within himself sound views about the gods, death, and human life generally—to mould our volitions and character in a manner conformable to the exigencies of virtue and happiness.

All true belief, according to Epikurus, rested ultimately upon the impressions of sense, upon our internal feelings, and upon our correct apprehension of the meaning of terms. He did not suppose the significance of language to come by convention, but to be an inspiration of Nature, different among different people. The facts of sense were in themselves beyond all question. But truth, though founded upon these evidences, included various inferences, more than sense could directly testify. Even the two capital points of the Epikurean physical philosophy—Atoms and Void—were inferences from sense, and not capable of direct attestation. It was in these inferences and in the superstructure built upon sense, that error was so frequently imposed upon us. We ought to test all affirmations or dogmas by the evidence of sensible phenomena; looking therein, if possible, for some positive grounds in support of them, but at any rate assuring ourselves that there were no grounds in contradiction of them, or, if there were such, rejecting the dogmas at once. Out of the particular impressions of sense, when often repeated, remembered, and compared, there grew certain general notions or anticipations (προλήψεις), which were applied to interpret or illustrate any new case when it arose. These general notions were not inborn or intuitive, but gradually formed (as Aristotle and the Stoics also conceived them) out of frequent remembrances and association.

Besides those conclusions which could be fully proved by the evidentiary data just enumerated, Epikurus recognized admissible hypotheses, which awaited farther evidence confirmative or refutative (τὸ προσμένον), and also other matters occult or as yet unexplained (τὰ ἄδηλα). Along with the intermediate or half-explained class, he reckoned those in which plurality of causes was to be invoked. A given effect might result from any one out of two, three, or more different causes, and there was often no counter-evidence of sense to exclude either of them in any particular case. This plural explanation (τὸ πλεοναχῶς) was not so complete or satisfactory as the singular (τὸ μοναχῶς); but it was often the best that we could obtain, and was quite sufficient, by showing a possible physical agency, to rescue the mind from those terrors of ignorance, which drove men to imagine visitations of the gods.

Epikurus agreed with Demokritus in believing that external objects produced their impressions on our senses by projecting thin images, outlines of their own shapes. He thought that the air was peopled with such images, which passed through it and still more through the infinite vacuum beyond it with prodigious velocity. Many of them became commingled, dissipated, recombined, during the transit, so that, when they reached us, the impressions produced were not conformable to any real object; hence the phenomena of dreams, madness, and the various delusions of waking men.

In setting forth the criterion of truth, Epikurus insisted chiefly upon the fundamental groundwork—particular facts of sense, as the data for proving or disproving general affirmations; and he had the merit of calling attention to refutative data as well as to probative. But, respecting the process of passing from these particulars to true generalities and avoiding the untrue, we can make out no clear idea from his writings that remain: his great work on Physical Philosophy is lost. It is certain that he disregarded the logical part of the process—the systematic study of propositions, and their relations of consistency with one another—which had made so prodigious a stride during his early years under Aristotle and Theophrastus. We can, indeed, detect in his remaining sentences

one or two of those terms which Aristotle had stamped as technical in Logic; but he discouraged as useless all the verbal teaching and discussion of his day—all grammar, rhetoric, and dialectic, beyond the lowest minimum. He disapproved of the poets as promulgators of mischievous fables and prejudices, the rhetoricians as furnishing weapons for the misleading career of political ambition, the dialecticians as wasting their time in useless puzzles. None of them were serviceable in promoting either the tranquillity of the mind, or the happiness of life, or the acquisition of truth. He himself composed a great number of treatises and epistles, on subjects of ethics and philosophy; but he is said to have written in haste, without taking time or trouble to correct his compositions. By the Alexandrine critic, Aristophanes of Byzantium, his style was censured as unpolished; yet it is declared to have been simple, unaffected, and easily understood. This last predicate is hardly applicable to the three epistles which alone remain from his pen; but those epistles are intended as brief abstracts of doctrine, on topics which he had already treated at length in formal works; and it is not easy to combine clearness with brevity.

VI.

THE STOICS.—A FRAGMENT.

The Stoics were one of the four sects of philosophy recognized and conspicuous at Athens during the three centuries preceding the Christian era and during the century or more following. Among these four sects, the most marked antithesis of ethical dogma was between the Stoics and the Epikureans.

The Stoics agreed with the Peripatetics (anterior to Epikurus, not specially against *him*) that the first principle of nature is (not pleasure or relief from pain, but) Self-preservation or Self-love; in other words, the natural appetite or tendency of all creatures is, to preserve their existing condition with its inherent capacities, and to keep clear of destruction or disablement. This appetite (they said) manifests itself in little children before any pleasure or pain is felt, and is moreover a fundamental postulate, presupposed in all desires of particular pleasures, as well as in all aversions to particular pains. We begin by loving our own vitality; and we come, by association, to love what promotes or strengthens our vitality; we hate destruction or disablement, and come (by secondary association) to hate whatever produces that effect.

This doctrine associated, and brought under one view, what was common to man not merely with the animal, but also with the vegetable world; a plant was declared to have an impulse or tendency to maintain itself, without feeling pain or pleasure. Aristotle (in the tenth Book of the Ethics) says that he will not determine whether we love life for the sake of pleasure, or pleasure for the sake of life; for he affirms the two to be essentially yoked together and inseparable: pleasure is the consummation of our vital manifestations. The Peripatetics, after him, put pleasure down to a lower level, as derivative and accidental. The Stoics went farther in the same direction—possibly from antithesis against the growing school of Epikurus.

The primary *officium* (in a larger sense than our word duty) of man is (they said) to keep himself in the State of Nature; the second or derivative *officium* is to keep to such things as are according to nature, and to avert those that are contrary to nature; our gradually increasing experience enables us to discriminate the two. The youth learns, as he grows up, to value bodily accomplishments, mental cognitions and judgments, good conduct towards those around him,—as powerful aids towards keeping up the state of nature. When his experience is so far enlarged as to make him aware of the order and harmony of nature and human society, and to impress upon him the comprehension of this great *idéal*, his emotions as well as his reason become absorbed by it. He recognizes this as the only true Bonum or Honestum, to which all other desirable things are referable; as the only thing desirable for itself and in its own nature. He drops or dismisses all these *primæ naturæ* that he had begun by desiring. He no longer considers any of them as worthy of being desired in itself, or for its own sake.

While, therefore, (according to Peripatetics as well as Stoics) the love of self and of preserving one's own vitality and activity is the primary element, intuitive and connate, to which all rational preference (*officium*) was at first referred, they thought it not the less true that in process of time, by experience, association, and reflection, there grows up in the mind a grand acquired sentiment or notion, a new and later light, which extinguishes and puts out of sight the early beginning. It was important to distinguish the feeble and obscure elements from the powerful and brilliant after-growth; which indeed was fully realized only in chosen minds, and in them hardly before old age. This idea, when once formed in the mind, was The Good—the only thing worthy of desire for its own sake. The Stoics called it the only good, being sufficient in itself for happiness; other things being not good, nor necessary to happiness, but simply preferable or advantageous when they could be had: the Peripatetics recognized it as the first and greatest good, but said also that it was not sufficient in itself; there were two other inferior varieties of good, of which something must be had as complementary

(what the Stoics called *præposita* or *sumenda*).[a] Thus the Stoics said about the origin of the Idea of Bonum or Honestum, much the same as what Aristotle says about ethical Virtue. It is not implanted in us by nature; but we have at birth certain initial tendencies and capacities, which, if aided by association and training, enable us (and that not in all cases) to acquire it.

A distinction was made by Epictetus and other Stoics between things in our power and things not in our power. In our power are our opinions and notions about objects, and all our affections, desires, and aversions: not in our power are our bodies, wealth, honour, rank, authority, &c., and their opposites; though, in regard to these last, it is in our power to *think* of them as unimportant. With this distinction we may connect the arguments between the Stoics and their opponents as to what is now called the Freedom of the Will. But we must first begin by distinguishing the two questions. By things in our power, the Stoics meant things that we could do or acquire if we willed: by things not in our power, they meant things that we could not do or acquire if we willed. In both cases, the volition was assumed as a fact: the question what determined it, or whether it was non-determined, *i. e.*, self-determining, was not raised in the antithesis. But it was raised in other discussions between the Stoic theorist Chrysippus, and various opponents. These opponents denied that volition was determined by motives, and cited the cases of equal conflicting motives (what is known as the Ass of Buridan) as proving that the soul includes in itself, and exerts, a special supervenient power of deciding action in one way or the other—a power not determined by any causal antecedent, but self-originating, and belonging to the class of agency that Aristotle recognizes under the denomination of automatic, spontaneous (or essentially irregular and unpredictable). Chrysippus replied by denying not only the reality of this supervenient force said to be inherent in the soul, but also the reality of all that Aristotle called automatic or spontaneous agency generally. Chrysippus said that every movement was determined by antecedent motives; that in cases of equal conflict the exact equality did not long continue, because some new but slight motive slipped in unperceived and turned the scale on one side or the other.[a] Here, we see, the question now known as the Freedom of the Will is discussed, and Chrysippus declares against freedom, affirming that volition is always determined by motives.

But we also see that, while declaring this opinion, Chrysippus does not employ the terms Necessity or Freedom of the Will; neither did his opponents, so far as we can see: they had a different and less misleading phrase. By freedom, Chrysippus and the Stoics meant the freedom of doing what a man willed, if he willed it. A man is free as to the thing that is in his power, when he wills it: he is not free as to what is not in his power, under the same supposition. The Stoics laid great stress on this distinction. They pointed out how much it is really in a man's power to transform or discipline his own mind—in the way of controlling or suppressing some emotions, generating or encouraging others, forming new intellectual associations, &c.; how much a man could do in these ways, if he willed it, and if he went through the lessons, habits of conduct, and meditatations, suitable to produce such an effect. The Stoics strove to create in a man's mind the volitions appropriate for such mental discipline, by depicting the beneficial consequences resulting from it, and the misfortune and shame inevitable, if the mind were not so disciplined. Their purpose was to strengthen the governing reason of his mind, and to enthrone it as a fixed habit and character, which would control by counter suggestions the impulse arising at each special moment—particularly all disturbing terrors or allurements. This, in their view, is a free mind; not one wherein volition is independent of all motive, but one wherein the susceptibility to different motives is tempered by an ascendant reason, so as to give predominance to the better motive against the worse. One of the strongest motives that they endeavoured to enforce, was the prudence and dignity of bringing our volitions into harmony with the schemes of Providence; which (they said) were always arranged with a view to the happiness of

[a] Aristotle and the Peripatetics held that there were *tria genera bonorum*: (1) Those of the mind (*mens sana*); (2) Those of the body; and (3) External advantages. The Stoics altered this theory by saying that only the first of the three was *bonum*; the others were merely *præposita* or *sumenda*. The opponents of the Stoics contended that this was an alteration in words rather than in substance.

The earlier Stoics laid it down that there were no graduating marks below the level of wisdom: all shortcomings were on a par. Good was a point, Evil was a point; there were gradations in the *præposita* or *sumenda* (none of which were good), and in the *rejecta* or *rejicienda* (none of which were evil), but there was no more or less good.

[a] See Plutarch, De Stoicorum Repugnantiis, xxiii. p. 1045.

the Kosmos on the whole. The bad man, whose volitions conflict with these schemes, is always baulked of his expectations, and brought at last against his will to see things carried by an overruling force, with aggravated pain and humiliation to himself: while the good man, who resigns himself to them from the first, always escapes with less pain, and often without any at all. As a portion of their view concerning Providence it may here be mentioned that the earlier Stoics, Zeno and Chrysippus, entertained high reverence for the divination, prophecy, and omens that were generally current in the ancient world. They considered that these were the methods whereby the gods were graciously pleased to make known beforehand revelations of their foreordained purposes. Herein lay one among the marked points of contrast between Stoics and Epikureans.

We have thus seen that in regard to the doctrine called in modern times the Freedom of the Will (*i.e.*, that volitions are self-originating and unpredictable), the Stoic theorists not only denied it, but framed all their Ethics upon the assumption of the contrary. This same assumption of the contrary, indeed, was made also by Sokrates, Plato, Aristotle, and Epikurus; in short, by all the ethical teachers of antiquity. All of them believed that volitions depended on causes; that, under the ordinary conditions of men's minds, the causes that volitions generally depended upon are often misleading and sometimes ruinous; but that, by proper stimulation from without and meditation within, the rational causes of volition might be made to overrule the impulsive. Plato, Aristotle, Epikurus, not less than the Stoics, wished to create new fixed habits and a new type of character. They differed, indeed, on the question what the proper type of character was; but each of them aimed at the same general end—a new type of character, regulating the grades of susceptibility to different motives. And the purpose of all and each of these moralists precludes the theory of free-will, *i.e.*, the theory that our volitions are self-originating and unpredictable.

While the Epikureans declined, as much as possible, interference in public affairs, the Stoic philosophers urged men to the duties of active citizenship.[a] Chrysippus even said that the life of philosophical contemplation (such as Aristotle preferred and accounted godlike) was to be placed on the same level with the life of pleasure; though Plutarch observes that neither Chrysippus nor Zeno ever meddled personally with any public duty: both of them passed their lives in lecturing and writing. The truth is that both of them were foreigners residing at Athens, and at a time when Athens was dependent on foreign princes. Accordingly, neither Zeno nor Chrysippus had any sphere of political action open to them: they were, in this respect, like Epictetus afterwards, but in a position quite different from Seneca, the preceptor of Nero, who might hope to influence the great imperial power of Rome, and from Marcus Antoninus, who held that imperial power in his own hands.

Marcus Antoninus—not only a powerful emperor, but also the most gentle and amiable man of his day—talks of active beneficence both as a duty and a satisfaction. But in the creed of the Stoics generally, active beneficence did not occupy a prominent place. They adopted the four Cardinal Virtues—Wisdom, or the Knowledge of Good and Evil, Justice, Fortitude, Temperance—as part of their plan of the virtuous life, the life according to Nature. Justice, as the social virtue, was placed above all the rest. But the Stoics were not strenuous in requiring more than Justice, for the benefit of others beside the agent. They even reckoned compassion for the sufferings of others as a weakness, analogous to envy for the good fortune of others.

The Stoic recognized the gods (or Universal Nature, equivalent expressions in his creed) as managing the affairs of the world, with a view to producing as much happiness as was attainable on the whole. Towards this end the gods did not want any positive assistance from him; but it was his duty and his strongest interest, to resign himself to their plans, and to abstain from all conduct tending to frustrate them. Such refractory tendencies were perpetually suggested to him by the unreasonable appetites, emotions, fears, antipathies, &c., of daily life; all claiming satisfaction at the expense of future mischief to himself and others. To countervail these misleading forces by means of a fixed rational character built up through meditation and philosophical teaching, was the grand purpose of the Stoic ethical creed. The emotional or appetitive self was to be starved or curbed, and retained only as an appendage to the rational self; an idea proclaimed before in general terms by Plato, but carried out into a system by the Stoics, though to a great extent also by the Epikureans.

The Stoic was taught to reflect how

[a] Tacitus says of the Stoics (Ann. xiv. 57): 'Stoicorum secta, quæ turbidos et negotiorum appetentes facit.'

much that appears to be desirable, terror-striking, provocative, &c., is not really so, but is made to appear so by false and curable associations. And, while he thus discouraged those self-regarding emotions that placed him in hostility with others, he learnt to respect the self of another man as well as his own. Epictetus advises to deal mildly with a man that hurts us either by word or deed; and advises it upon the following very remarkable ground:—"Recollect that in what he says or does, he follows his own sense of propriety, not yours. He must do what appears to him right, not what appears to you: if he judges wrongly, it is he that is hurt, for he is the person deceived. Always repeat to yourself, in such a case: The man has acted on his own opinion."

The reason here given by Epictetus is an instance, memorable in ethical theory, of respect for individual dissenting conviction, even in an extreme case; and it must be taken in conjunction with his other doctrine, that damage thus done to us unjustly is really little or no damage, except so far as we ourselves give pungency to it by our irrational susceptibilities and associations. We see that the Stoic submerges, as much as he can, the pre-eminence of his own individual self, and contemplates himself from the point of view of another, as only one among many. But he does not erect the happiness of others into a direct object of his own positive pursuit, beyond the reciprocities of family, citizenship, and common humanity. The Stoic theorists agreed with Epikurus in inculcating the reciprocities of Justice between all fellow-citizens; and they even went farther than he did, by extending the sphere of such duties beyond the limits of city, so as to comprehend all mankind. But as to the reciprocities of individual Friendship, Epikurus went beyond the Stoics in the amount of self-sacrifice and devotion that he enjoined for the benefit of a friend.

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